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SUSTAINABLE ASSET REFERENCED TOKENS: REGULATORY AND TECHNICAL ASPECTS

Suzana Maranhão.

TOKEN BUSINESS MODELS AND THE FINANCING WITH VENTURE CAPITAL

Matthias Fischer.

Alastria Legal

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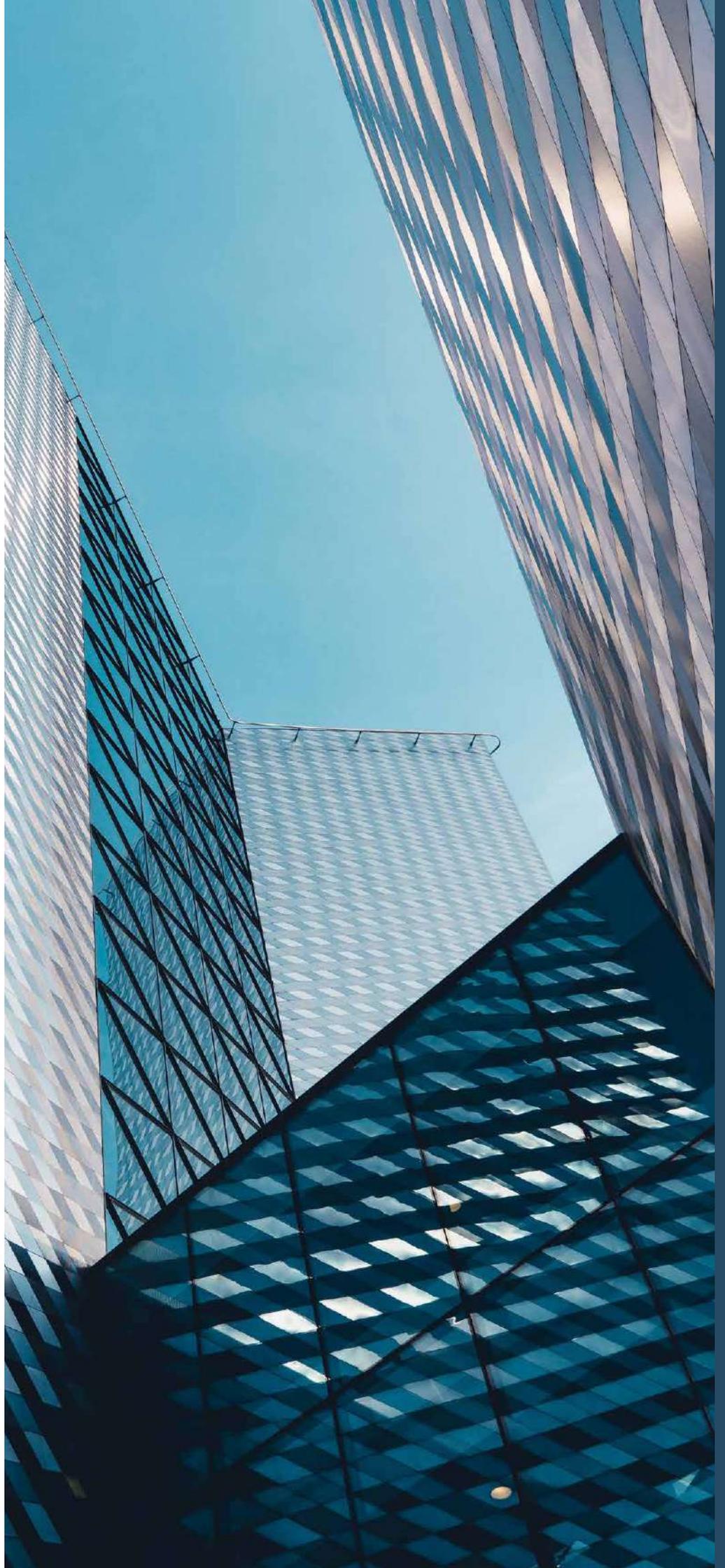
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Editorial

The Alastria World Token Conference, a world pioneering academic experience

It is a high honor and undisguised satisfaction for the Academic Council of Alastria Legal magazine, in the difficult circumstances that surround us all in 2021, to announce, in the first place, the publication of the third number of its first period. With the invaluable and most effective help of the members of the Academic Council of the review and the Editorial Committee responsible for the edition, we have prepared for the Alastria ecosystem and for society in general an extraordinary monographic number on the World Token Conference, convened by the Alastria Red Consortium and issued from the headquarters of the Comillas Pontifical University of Madrid which, at the beginning of April, took place with the participation of more than thirty speakers from ten countries to present, debate and serve proposals about one of the central objects of the Distributed-Ledger Technology, according to the international standards of the industry: the token or cryptographic token, crypto-asset registered in a blockchain that allows to represent any type of object for circulation and credit-rights cession in a distributed network, even incorporating such credit rights themselves in order to facilitate the creation of new DLT markets.

The central objective of the conference, led by world renowned experts in blockchain technology, was to unite and present different economic, regulatory and technological experiences about the world of tokens and tokenization, precisely when these tokens are issued, traded and transmitted, on distributed-ledger platforms with the use of the corresponding technology (DLT, and blockchain in particular). The blockchain architecture, in decentralized multinodal networks, facilitates with considerable advantages over other traditional computer registries the management and administration of crypto-assets (tokens), from the moment of their creation or issuance, to that of their attribution, transmission or circulation, until its extinction. Processes that ideally take place on public distributed platforms that are authorized or "permissioned", under public administrative control and with guarantees of material -or technical- and economic security, where a new industry of tokens and intermediaries (crypto-asset service providers) is born to facilitate a much more efficient negotiation -than the one develo-

ped through classic electronic book entries for investors and issuers-. Such industry is that of new tokenized assets, in an encrypted digital format.

As the reader will have the opportunity to verify, the essential issues for governing the new capital markets in Europe and America were examined at the conference, comparing the pre-existing regulation on both continents with the new one, on the basis of the case of the EU. The European Commission has commanded several Proposals or Regulations within the so-called DeFi Pack, the legislative core of the Commission's so-called Digital Finance Strategy. During the Conference, particular attention was paid to the treatment of tokens in the Proposal for a Regulation of the European Parliament and Council on Markets in Crypto-Assets (MiCAs), of September 2020, now in the amendment phase, in whose formation before the European Commission Alastria participates by means of its Legal Committee through its work in the MiCA Task Force of the European International Association for Trust Applications in Blockchain (INATBA); workforce where several members of the Red Alastria Consortium Legal Committee participated, including Pedro Méndez de Vigo (Cuatrecasas, who served as Alastria's rapporteur before the Task Force) and Javier Ibáñez (Comillas), Sponsor of the Investigation and Technological Transfer Commission of Alastria, and Director of the Fintech Observatory at Comillas University. These works focus on the key legal issues for companies and the public sector regarding the trading of financial and non-financial crypto assets.

Some of the most representative speeches in the Conference compose this third monographic number of the Alastria Legal review, which our readers, partners of Alastria or not, will surely enjoy. We strongly believe in the consolidation of the Alastria Consortium-Network after its renewal process in Spring and Summer this year. The members of the CITT and Legal Committee fully trust in the appointed managers and staff to lead the Association, and this monographic number is an expression of such confidence.

Javier Ibáñez Jiménez

President of the Alastria Legal Academic Council





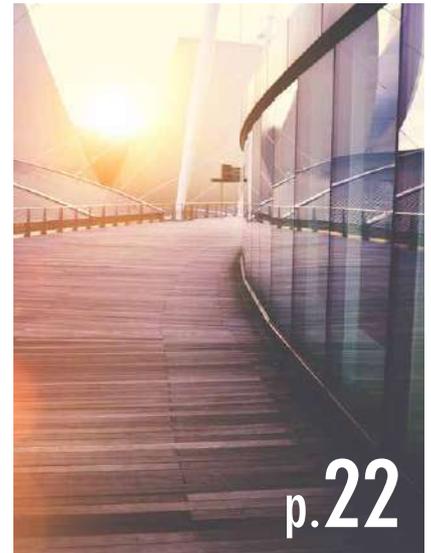
CLOSING SPEECH

Rodrigo Buenaventura



MICA REGULATION: LEGAL MATTERS STILL PENDING

Javier Ibáñez Jiménez



BUILDING NEXT-GENERATION INSTITUTIONAL DIGITAL MARKET INFRASTRUCTURES

Tim Grant



TOKEN BUSINESS MODELS AND THE FINANCING WITH VENTURE CAPITAL

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SUSTAINABLE ASSET REFERENCED TOKENS: REGULATORY AND TECHNICAL ASPECTS

Suzana Maranhão



TOKEN TAXONOMY IN MICA PROPOSAL AND DATA PROTECTION ISSUES

Xavier Foz



Presentation

Alastria Consortium CITT / Comillas FinTech Legal Observatory

The initial objective of the academic intercontinental webinar that took the name "Token World Conference" after the most renowned variety of crypto-asset or virtual asset in the realm of distributed-ledger technology (DLT) and emerging cryptographic digital technologies and techniques, was gathering the expertise and transdisciplinary thorough vision of tokens and asset tokenization registered in trading platforms based upon distributed-ledger technology, and the related crypto-asset marketplaces, today finding an autonomous regulatory space in the EU.

The architecture of blockchain facilitates itself the automated offering and trading of encrypted assets, the management and administration of crypto-markets, and all legal and business relevant processes tied to token issuance and exchange in crypto-asset specific platforms set upon public-permissioned decentralized blockchain ledgers (Permissioned Distributed Ledgers, PDLs) wherein a brand new industry of crypto-

or virtual-asset intermediaries VASP / CASP are called to provide blockchain distributed, disintermediated and decentralized essential automated trading services to investors (digitized investment services).

The aforementioned Conference herein presented took place between 6th and 9th of April in 2021, and the webinar (presential but accompanied by the physical presence of a majority of lecturers, interested academicians and organizers) was issued from the ICADE Center for Law Innovation of the Comillas Pontifical University at Madrid Alberto Aguilera campus.

The round tables, wherein high-quality scientific and academic level debates were conducted, were led by renowned legal experts. And the previous lectures in the four sessions were prepared and publicly exhibited by world leading experts, who showed specific applied selected positive-law, economic and technological first-class criteria to solve the main issues posed by

¹ Since October of 2017, moment of legal constitution of Consorcio Red Alastria as a Spanish private-law association as legal form of the blockchain Spanish consortium and community, Prof. Dr. Javier Ibáñez Jiménez leads the Commission for Research and Technological Transfer (CITT). He also is the head of the FinTech Legal Observatory at Comillas Pontifical University (Madrid), organizer of the venue for the Token World Conference. The Observatory members wish to thank the organizative labor of Mrs. Daniela Corredor and the members of this Observatory, and the Alastria members of the Board and members of the core team committed with the event.

the relevant matters programmed as part of the contents within each session.

Such criteria are currently being brought to DLT networks and token markets in EU and US to solve major public- and private-law challenges posed by tokenization and use cases in different jurisdictions all over the world. And most of the proposed solutions and approaches are useful to lawyers, DLT practitioners, service providers and regulators, since they are currently supplying relevant insights for the improvement and consolidation of the professional practice of token contracting, supervision and market-infrastructure regulation, as foreseen in the EU forthcoming legal framework for DLT token trading (2020 September Proposal for Market in Crypto-Asset –MiCA- Regulation), DLT market infrastructure for token contracting (2020 UE Proposal for DLT Market Infrastructures) and related regulations as Digital Operational Resilience Act and other European regulations related with blockchain resilience that accompany MiCA and Market Infrastructure proposals for a thoroughly efficient configuration DLT package for the UE Digital Finance Strategy currently going on.

The Token World Conference poses key governance issues for DLT networks and platforms to trade security tokens in Crypto-asset and in regulated MiFID / MiFIR markets in EU, and in relevant non-EU national jurisdictions as well. The legal criteria set forth by legal speakers were in accordance with the 2021 critical comments passed on to EU COM by DLT industry (represented by the International Association for Trusted Blockchain Applications, INATBA) in form of amendments designed to improve the MiCA Proposal of Regulation of the EU Parliament and the Council. Within this context, a bunch of leading authors of the INATBA MiCA Task Force present herein the vision of DLT industry by the INATBA Association, representing the viewpoint of the leading DLT-network and ecosystems European representatives. To this extent it should be outlined

that INATBA Mica Task Force were appointed as competent representatives to discuss MiCA Regulation matters with the EU Commission competent representatives, focusing on public-, company- and commercial-law most relevant issues related with security token trading.

But not only legal matters have been analyzed in the Token World Conference, conceived as a multidisciplinary global event.

Regarding the second part of the Congress, business economics and strategic leading industry managers supplied their profound visions on the Public-Distributed Ledger horizon of tokenization and token digitized markets within the forthcoming years.

Last but not least, consumer representatives, banking- and IT-law academicians, DLT-network managers and officers and board members of DLT network managers and administrators, and supervisor and public- agency specialized executives and directors contributed during the Conference to weave a transdisciplinary panorama of consistent alternatives to overcome the current regulatory and strategic barriers still faced by permissioned ledgers (PDLs), oriented to deepen the transformative social and economic digitization brought by the distributed new P2P token automated digital financing system that presumably will see the light within the present decade.

As set forth by Profs. Drs. Marta García Mandalóniz (Carlos III University) and Salvatore Moccia (La Rioja University) during the corresponding presentation session at the Conference², this publication brings together some of the most representative interventions and lectures given during the sessions³. Without prejudice to this, a complete set of all speeches, including round table briefings and keynotes, will be published in a Reus editorial monography within the collection "Blockchain law and society digitization", directed by prof. Dr. Ibáñez Jiménez.

² Law Journal Presentation (Alastria Legal Review, Nr. 3 (2021) by Members of the Academic Counsel of Alastria Legal Review, Salvatore Moccia (Full Professor of Strategic Management, UNIR) and Marta García (Full Professor of Commercial Law, Carlos III University. Former Research Vice-Dean at Law Faculty, UC3M, Madrid).

³ The Alastria CITT particularly thanks M. Ventosa, M^a Parga, S. Jones, P. Méndez de Vigo, J. Erbguth, A. Padín, A. Fleisher, C. Alonso, M. Barrio, A. Codes, P. Sanz, P. Roca, L. Martínez, A. Chuburkov, I. Arribas, P. Lamothe, C. de Cores y A. Tapia, for their timely, rigorous and helpful interventions as speakers or round table moderators and participants.

Closing speech*

Rodrigo Buenaventura.
The CNMV Chairman. 9 April 2021.

I. PRELIMINARY WORDS

Good morning,

Let me, first of all, thank the organisers, Alastria and the Universidad de Comillas, for the invitation to participate in this interesting event. It has brought together complementary views and experiences spanning multiple disciplines on asset tokenisation based on distributed ledger technology.

If there is one thing that we can all agree on, it is the transformative power of this tool, as well as its potential to become one of the pillars of the digital transformation of the economy, affecting almost all of it. Plenty of entities are performing research and testing processes based on blockchain technology: companies, private and public institutions in a wide variety of sectors, from finan-

ce to energy, from telecommunications to health or from retail distribution to stock markets. And this is not only modifying and making their internal processes more efficient, but also allowing the generation of new business models.

The institution that I represent as Chairman, the CNMV, is no stranger to all these new paradigms and technological developments, not only as a consequence of our daily interaction with the stakeholders that make up the securities markets - companies, issuers, investors, etc. - but also as a result of several factors.

Firstly, because of our mandate and activity. The CNMV, as the institution supervising the financial markets in Spain, must always act on the basis of the three objectives assigned to us by the Law: investor protection, transparency of information and orderly functioning of the market. But in the

* Of the Token World Conference (Comillas Pontifical University).



current context we must also make it easier for financial markets to be one of the tools driving a sustainable and digital economic recovery.

Secondly, in the context of our strategy for 2021 and 2022, which is based on four main strategic lines:

1. Implementing rigorous supervision based on investor protection and greater use of data.
2. Boosting capital markets as a source of financing for economic recovery.
3. Facilitating the role of the securities market in the transition to a more sustainable and inclusive economy and finally (what will be more relevant for this audience).
4. Promoting technological advances applied to the securities markets, preventing their risks.

This last line applies to the so-called digital finance, which is part of the global digital transformation of our economy and therefore of our society, in which investors should be the ones to profit from it.

And thirdly, the involvement of CNMV is high because the link between securities markets and DLT technology must be "trust". Blockchain is a shared and common database for a community of stakeholders who use and maintain it, in which the key to its nature is trust towards the majority of its participants.

There is, therefore, no single node that provides trust, but rather all the nodes in the network that provide trust to the whole, insofar as all the copies are automatically synchronised in real time. That means that none of the participants centralise the information, nor are they capable of altering it without the rest knowing. The very same concepts that constitute the backbone of blockchain technologies, trust and transparency, are precisely the driving forces of financial markets supervision.

As I said earlier, the CNMV, as the supervisory body of the financial markets, is no stranger to these technological developments and, in this regard, let me refer to three recent developments that illustrate this.

II. INNOVATION HUB AND SANDBOX

The innovation hub of CNMV and the sandbox project are two key tools to promote innovative developments. The CNMV operates the Innovation hub since 2016, in the form of our Fintech Portal. That hub has dealt with more than 400 queries to date.

Its aim from the outset has been to create an informal space to exchange mutual knowledge between CNMV and the industry and to give guidance to project promoters especially with regard to regulatory matters.

Similarly, we started a few weeks ago to develop the Sandbox, which, together with the Spanish Treasury and the other two financial supervisors (Bank of Spain and DG Insurance) allows the creation of a specific controlled space in which promoters and authorities can test innovative projects in the field of finance.

Although it is too early to assess the results, the project is a priority for us and the drive, commitment and support of the Spanish public authorities in this matter are crystal-clear. 67 different projects have been submitted, of which 32 are projects that could potentially affect the CNMV's sphere of competence either exclusively or jointly with other supervisors.

A significant part of these projects is based on the application of DLT technology to the securities markets. As we speak, we are assessing these projects to determine which of them provide a real innovation, are mature enough to be tested and are likely to generate some of the benefits outlined in the law. In any case, I have no doubt that the experience will be enormously positive and enriching for everyone.

III. CRYPTOASSETS AND THEIR ADVERTISING

The second recent event is the advertisement of cryptocurrencies. In February of this year, the CNMV and the Bank of Spain issued a joint public statement warning of the risks of investing in these types of assets given that they are un-



regulated (at least for the moment, as there is a draft European regulation). Therefore, among other things, their price formation process is not fully transparent and involves a highly speculative component which has been reflected in the strong price fluctuations they have undergone in recent years.

We have all witnessed an increase in mass advertising of these products in recent months, both on physical and digital media. In these ads, some concepts that are more typical of financial products are used, such as "investment" or "profitability". This explains why at the beginning of March the government amended the Securities Market Act granting the CNMV the power to develop the rules governing the advertising of cryptoassets. But let me insist on a key element: what will be subject to the CNMV's control are not the instruments (cryptoassets) nor the service providers related to them nor the transactions carried out on these assets, but only their advertising when they are offered as an investment.



In this regard, exactly four days ago, we launched the mandatory prior public consultation, which is now ongoing. We encourage all of you to answer and contribute until next Friday.

The main element that requires regulatory action lies in the possibility that crypto-asset advertising as an investment does not contain objective information about the product and its risks

The main element that requires regulatory action lies in the possibility that crypto-asset advertising as an investment does not contain objec-

tive information about the product and its risks. You have probably noticed that the advertising of these products to retail clients in recent months has been carried out through a wide and growing variety of media and with increasing intensity. Those acquiring such products need to be aware of the risks involved and of the fact that such an investment could in some cases result in:

- a)** significant losses due to price fluctuations,
- b)** episodes of illiquidity, or
- c)** even in total loss due to cyber-attacks or custody failures.

The purpose of the future circular will be to develop the rules, principles and criteria to which advertising on cryptoassets must be subject to. In particular, we intend to define the objective and subjective scope, to specify the advertising activity that will be subject to prior authorization and to establish the tools and procedures that will be used to make the supervision of this advertising activity effective.

With regard to the objective scope, the CNMV is considering capturing the advertising activity aimed at potential investors in Spain in which cryptoassets are offered or brought to the attention of those potential investors. To this end, it will probably be necessary to exempt from this scope certain professional activities like white papers, professional investment research, offers to professionals, non-fungible tokens and those which are exclusively a means of payment.

With regard to the subjective scope, we are considering focusing on cryptoasset service providers, the definition of which would be included in the Circular, irrespective of their home State. The advertising companies acting on their behalf would also be subject to the circular.

As to the forms of administrative control, we are also considering requiring prior authorisation by CNMV for mass advertising campaigns aimed at the general public that are carried out through the media, physical ads in the streets or certain virtual media, although we are also considering the intermediate possibility of simply requiring prior notification in some of these cases.

The rest of the advertising actions would be subject to subsequent supervisory action by the CNMV, which may require the cessation or rectification of the advertising activity in accordance with the terms established in the Circular.

Advertising campaigns would be required to be clear, balanced, unbiased and not misleading

Advertising campaigns would be required to be clear, balanced, unbiased and not misleading. This is particularly relevant in the information on returns, in particular where reference is made to past returns, and in the information on costs. It is also our intention to include mandatory warnings about the risks of investing in cryptoassets, along the lines of the mandatory warnings on other



products such as medicine or complex financial products, both in an abbreviated and standardised form in each advertising communication, and in more detailed supporting documentation.

The regulation will also include a regime for the supervision of advertising by the CNMV, which will detail the procedures and deadlines for requesting information from regulated parties, demanding cessation or rectification and initiating sanctioning proceedings when necessary.

I understand that some of you may be surprised by the emphasis that some supervisors place on risks when cryptocurrencies are offered as an investment. After all, some people have seen their bitcoins increase in value very substantially and it may seem that the CNMV does not perceive that aspect. However, it should be remembered that "the jury is still out" when it comes to the role that bitcoin and other cryptocurrencies will play in the future. Now they are not yet a widely accepted means of payment and we do not know if they will ever be. They offer no intrinsic coupons or payment promises. Therefore, be-



ing realistic, they are promoted mainly as an investment, trusting their future appreciation due to a growing demand. But we have seen in the past that when an asset with no intrinsic use or value is bought mainly based on the prospects of future price rises, bubbles tend to occur, and prices can fire back strongly.

It is only normal for a supervisor whose mission is to protect investors to issue alerts about these risks and to ensure that marketing of these products, which are not regulated financial instruments, is fair, clear and not misleading.

IV. DLT TECHNOLOGY AS A POSITIVE DISRUPTION AND MARKET EFFICIENCY BENEFITS

But let me assure you that this caution does not make our commitment to digital finance any weaker. Let me refer again to the development of DLT technologies. It may still be in its infancy, but I am convinced that it can have a huge impact on securities and derivatives markets. It is a disruptive technology in the good sense of the word disrupt-

ive, of course, because through DLT and smart contracts we can build a more efficient, digitally native marketplace that allows its participants to transact quickly, securely and without borders.

On the basis of this decentralization we can, among other things, significantly shorten the settlement times of financial transactions, even making this process immediate, with the associated efficiency gain in terms of costs borne by investors. It could also lead to a reduction in the risk currently concentrated in central counterparties' clearing, which could also reduce the costs of trading financial instruments.

All in all, the use of this technology could result in settlement and clearing systems that are clearly very different from the current ones. Another possible application of this technology could be the reduction of issuance authorization times by the supervisor. The CNMV for instance was one of the first supervisors in Europe, several years ago, to participate in a pilot project consisting of a DLT private network to streamline the issuance process of covered warrants.

But this requires DLT technology to be robust and resilient, and an initial step could be the development of permissioned networks. We will need also control mechanisms along with a set of closed participant nodes with the definition of different roles of participation. In these networks, we the supervisors could also play a role.

Let me conclude by pointing out that there is no doubt that blockchain technology is already a driver of innovation in securities markets. Tokenisation processes must work to offer an interactive, efficient, cheap, robust and secure platform that will allow not only efficiency gains in existing processes, but also the development of new products and services forming the core of the global digital economies.

The CNMV, always from its position as a supervisor, will do its utmost to accompany this process and incorporate it successfully and safely into the Spanish securities markets.

Thank you very much for your attention.



Mica regulation: **legal matters** still pending

Javier Ibáñez Jiménez.

Full Professor of Commercial Law, Comillas Pontifical University. Alastria Co-Founder and Sponsor of Research & Technology Transfer Commission.

I. FOREWORD

Today I am delighted to address these words to this distinguished audience with the double satisfaction of hosting the Token World Conference in the Comillas University as a Director of its FinTech Observatory, and also as an Alastria co-founder and Board member. I am also highly honoured to announce the participation of the Alastria Legal Committee in the MiCA Task Force. Such participation constitutes for me a great opportunity to give Alastria and the Spanish DLT industry a privileged feedback on the evolution of token regulation and cryptoasset regulatory key issues, not only from the INATBA (International Association for Trusted Blockchain Applications) viewpoint but also from EBA, ESMA and EU Commission visions to this respect, within the framework of the EU Digital Financial Strategy.

Alastria, as a private-law association representing the interests of Spanish DLT industry, communi-

ties and network ecosystems, has been highly interested in the development of the Digital Finance Package since the beginning, as its Legal Committee members have recently outlined.

The observable lack of consensus on a common position on legal matter still pending in MiCA Reg and other pieces of DeFi regimes is a positive fact for legislators and industry, and it just means the presence of a diversity of interests (banking, commodities industries, tech startups, public administrations, science and research, among other), all involved in the Alastria community, and the need to efficiently compose such interests.

There is also no common position at INATBA on a lot of topics regulated in MiCA, by similar reasons. However, Alastria representatives believe that MiCA contents can still be substantially improved, especially by means of cooperative efforts beyond MiCA Task Force's. In particular, commodity and security markets supervisors,

and DLT industry, should work together for obvious reasons.

Alastria also participated in the draft of INATBA's position paper and informed about the views of its stakeholders on a regular basis. The legal committee of Alastria has been honored receiving INATBA's MiCA Task Force invitation to con-

The legal committee of Alastria has been honored receiving INATBA's MiCA Task Force invitation

tribute, and we have had an utmost enriching experience collaborating with European Commission to improve MiCA regulation, making it more industry friendly. It should be noted that the International Association for Trusted Blockchain Application is not only a forum of experts, but a meeting point for DLT industry practitioners continuously essaying on architecture (SCs, APIs, DApps and related platforms), and such experience should not be ignored by regulators.

II. SPECIFIC LEGAL MATTERS STILL PENDING OR DIFFICULT TO COPE WITH FOR THE MICA REGULATOR, IN ACCORDANCE WITH THE SEPTEMBER OF 2020 PUBLISHED TEXT.

Let us see some, just on Title I and II of MiCA Reg as a sample. A minimally mindful thorough analysis of all Titles would take us several hours, probably as many as the MiCA Task Force sessions conducted within the legal group by Mr. Xenophon Kontouris during the last months.

Title I sets the subject matter, the scope and the definitions.

Article 1, Subjects encompassed, sets out that the Reg applies to CASP providers and issuers, but... are all VASP/CASP encompassed within it? Auxiliary off chain service providers, physical persons involved in crypto-issuing, are two samples of possibly non-encompassed sub-

jects. And as I am concerned there are no significant cost-benefit analysis performed to clearly conclude (as articles 3 and 4.1a seem to do) that physical issuers should not ask permission for issuing or for their tokens to be traded on a MiCA- supervised platform.

Another relevant question posed by a detailed analysis of art. 1 refers to the Uniform requirements for transparency and disclosure of issuance, operation, organisation and governance of CASP are ok, but... will be consumer protection rules and measures enough to prevent misinformation (mainly on DLT architecture; v. ITU-T FG DLT 2019) and market abuse? There is no reference to cross market abuses, which is essential in ARTs on commodities.

Article 2 poses questions related with the object of the contract. It leaves aside financial instruments (under MiFID Reg), and also deposits under banking rules, but: what cryptos should be considered capital market instruments. Is Howey test relevant to this extent? Are classical tradability or massive negotiation requisites, present in European national capital market rules, relevant for cryptos? Apart from this, is the commodity vs security distinction relevant to this extent, in similar terms to those posed by US CEA and SEA? And, should MiFID 2 be applicable to any financial regulated crypto characterized as "security", considering the specificity of crypto platforms and underlying DLT architecture? This is a crucial point related with what Mrs. Jones called "bifurcation" some minutes before.

Article 3 sets out the key terms and definitions that are used for the purposes of this Reg. Beyond the doubts of technicians on the boundaries of essential concepts, including 'crypto-asset' (see ISO and ITU-T standards), there is another key juridical debate posed herein and to me still unsolved: are all 'asset-referenced token' a kind of 'stablecoins' (the same problem is posed by 'e-money tokens', often described as 'stablecoins'.

And, within the realm of deserved supervision, are "significant" e-money and ART token limits relevant for investor protection purposes? Once more a matter of dubious and unknown efficiency.

And within the field of services provided, we have reasonable doubts on the presumably adopted equivalence of concepts set out in MiCA. For instance, is a CASP/VASP the DLT equivalent of investment service provider under MiFID 2, and can it be from the viewpoint of investor specific protection out of the scope of general civil private law or consumer-rule protection?

From the viewpoint of private contracting there also other relevant subjects missed or ignored by MiCA, like those tied to the private-law qualification, nature and subsequent private-law applicable to tokens, like in the case of 'utility token', probably considered a residual and undetermined meta-juridical category, beyond traditional services provided by professionals (arrendadores, providers who locate or hire services for price in civil law) I always say to my pupils that most investment services contain no "provision of service", since they should be reputed commission contracts, or even barter or purchase of assets.

Finally, article 3 also defines the various crypto-asset services (CAS), but... is the list in the paragraph (o) exhaustive and closed? EU Commission may adopt delegated acts to specify some technical elements of the definitions, to adjust them to market and technological developments; however, such specifications could become the rule and not the exception...

Title II regulates the offerings and marketing of crypto-assets to the public (ITO, STO).

Article 4, Issuers entitled to offer new cryptos or seek admission to trading on a DLT platform must comply with the requirements in Article 5, such as the obligation to be established in the form of a legal person for reasons of...legal security and responsibility? Many questions can be posed herein, since specialized physical persons could better couple with such requirements. A mental remora not yet surpassed, the myth of the overall major trend to insolvency of personal patrimonies... such myth is even dissipated by the exemption of small STOs under 1 million in a year.

A mental remora not yet surpassed, the myth of the overall major trend to insolvency of personal patrimonies

Definitely, there are substantial differences between crypto and security trading under the standpoint of primary and, with more clarity, secondary market regulation, but such differences have not impeded the transcription or acritical accommodation of many securities law pre-existing norms and rules (beyond relevant protective market principles, like transparency or full disclosure and responsibility inspiring Article 11); such norms have been spread all over the text, including the references to Prospectus in accordance with Reg (2017/1129), or the regime of whitepaper notifications ex Article 6 to the national competent authorities. By the way, which ones, only capital market or banking supervisors in the case of ARTs?

The latter is a huge supervisory cross-border question, opening alternatives for a major public-law regulatory debate. Many difficulties could be opposed with respect to the actual and effective competence and availability of NCAs to assess as foreseen in the MiCA regulation, particularly when original cryptos qualify as investment contracts but not as tradable securities in organized MTS or regular markets. Such issues should not be resolved without the support of industry experts. That is why the call to INATBA representatives has been important for the configuration of amendments in progression for the final text of MiCA Reg.

The call to INATBA representatives has been important for the configuration of amendments in progression for the final text of MiCA Reg.

III. COMMON LEGAL PROBLEMS STILL UNSOLVED AT BOTH SIDES OF THE ATLANTIC OCEAN IN CRYPTOASSET REGULATION⁴

- A) Lack of clarity in current market rules and or, ignorance of DLT previous relevant aspects in token contracts (SC structure and function, DLT network layer or protocol items...).
- B) Eventual limited applicability or full inapplicability of rules as set forth and fulfilled on centralized market subjects (like Central Counterparty regimes, Central Security Depository regimes, and legal provisions for investment guarantee funds, among other relevant legal provisions put in practice in regular exchanges for traded instruments according to MIFID / MIFIR rules).
- C) Inapplicability of rules on traditional contracts (like custody, deposit and registration) and contract fulfilment procedures (like offsetting transactions, payment to CCs and CDSs).
- D) Arising of anti-money laundering (AML) and general data protection regulation (GDPR) new legal issues and challenges related to the development of blockchain transaction tied to the CA cession of property, in the fields of digital identification and authentication of parties, issuing and revocation of consent for contracting and other related matters..
- E) National Competent Authority (NCA) transnational and inner domestic national eventual jurisdictional conflicts.

Still many high hurdles to jump over, many obstacles to be passed. Good luck EBA, ESMA and EuroCOM representatives, but please pay attention to DLT industry.

IV. OTHER RELEVANT ISSUES BROUGHT TO MICA REGULATION BEYOND THE SCOPE OF TRADITIONAL SECURITY MARKETS OR EXCHANGES FOR THE TRADING OF TRADED QUOTED INSTRUMENTS

Title III, Chapter 1 sets out the requirements for issuers of asset-referenced tokens (often described as 'stablecoins'). Article 13 indicates that no asset-referenced tokens can be offered to the public in the Union or admitted to trading on a trading platform for crypto-assets if the issuer is not authorised in the Union and it does not publish a whitepaper approved by its compe-

tent authority. Article 13 also includes exemptions for small-scale asset-referenced tokens and for asset-referenced tokens that are marketed, distributed and exclusively held by qualified investors. To be authorised to operate in the Union, issuers of asset-referenced tokens shall be incorporated in the form of a legal entity established in the EU and shall act honestly, fairly and professionally (Article 14). They shall also comply with other requirements, such as capital requirements (Article 16), governance requirements (Article 17), rules on conflicts of interest (Article 18), rules on the stabilisation mechanism and the reserve of assets backing the asset-referenced tokens (Article 19) and requirements for the custody of the reserve assets (Article 20). Article 21 provides that an issuer shall only invest the reserve assets in assets that are secure, low risk assets (as described by the electronic

⁴ AIXI ZHANG, A. (2020) *Regulating Crypto Asset: Securities and Commodities*, Harvard Law School, *The Case Studies, CSP056*, April, https://projects.iq.harvard.edu/files/financialregulation/files/digital_assets_case_study.pdf, 1-26.



money directive) and that meets the definition of high quality liquid assets under the Capital Requirements Regulation (Regulation EU 575/2013). Article 22 also imposes on issuers of asset-referenced tokens to disclose the rights attached to the asset-referenced tokens, including any direct claim on the issuer or on the reserve of assets. Where the issuer of asset-referenced tokens does not offer direct redemption rights or claims on the issuer or on the reserve assets, Article 22 provides holders of asset-referenced tokens with minimum rights. Article 23 also prevents issuers of asset-referenced tokens and crypto-asset service providers from granting any interests to holders of asset-referenced tokens. Article 25 and Annex 2 of the proposed Regulation set out the additional disclosures that an asset-referenced token issuer is required to include in its whitepaper (Article 25). Issuers of asset-referenced tokens are also subject to ongoing information obligations (Article 26). They are required to establish a complaint handling procedure (Article 27) and have a procedure in place for an orderly wind-down (Article 28).

Title III, Chapter 1 (Article 15) also distinguishes between asset-referenced tokens and significant asset-referenced tokens. The Commission will be empowered to adopt a delegated act in order to specify the circumstances under which and thresholds above which an issuer of asset-referenced tokens will be considered significant. The issuers of such significant asset-referenced tokens will be subject to additional requirements, in terms of capital requirements (Article 16), interoperability (Article 24) and liquidity management policy (Article 19). To avoid any regulatory arbitrage between the status of e-money issuer under the e-money directive and the status of significant issuer of asset-referenced tokens, this proposal indicates that e-money issuers that meet the conditions and criteria defining an asset-referenced token issuer shall be subject to some requirements set out in this Regulation (Article 15(6)).

Title III, Chapter 2 describes the procedure for authorisation of the asset-referenced token issuers and the approval of their whitepaper by

national competent authorities (Article 29). National competent authorities are in charge of the supervision of the asset-referenced token issuers (Article 31) and can withdraw their authorisation (Article 32). However, the supervision of issuers of significant asset-referenced tokens is conferred to EBA (Article 33). E-money issuers

The supervision of issuers of significant asset-referenced tokens is conferred to EBA

that meet the criteria of significance (Article 15) will also be subject to EBA supervision (Article 33). Title IV, Chapter 1 sets out the requirements for issuers of e-money tokens (often described as 'stablecoins'). Article 37 describes that no e-money tokens shall be offered to the public in the Union or admitted to trading on a crypto-asset trading platform unless the issuer is authorised as a credit institution or as an 'electronic money institution' within the meaning of Article 2(1) of Directive 2009/110/EC. Article 37 also states that 'e-money tokens' are deemed electronic money. Article 38 describes how holders of e-money tokens shall be provided with a claim on the issuer: e-money tokens shall be issued at par value and on the receipt of funds, and upon request by the holder of e-money tokens, the issuers must redeem them at any moment and at par value. Article 40 sets out the requirements for the whitepaper accompanying the issuance of e-money tokens, for example: description of the key characteristics of the issuer, detailed description of the issuer's project, indication of whether it concerns an offering of e-money tokens to the public or admission of these to a trading platform, as well as information on the risks relating to the e-money issuer, the e-money tokens and the implementation of any potential project.

Title IV, Chapter 2 describes the procedure for authorisation and supervision of e-money token issuers. National competent authorities are in charge of supervising e-money issuers (Article

43), however, when these have been deemed significant in accordance with Article 15, the supervision of such e-money token issuers is conferred to the EBA. Article 44 details the composition of the College that must be set up within 30 calendar days after a decision to classify an e-money token as significant. The college shall consist of, among others; the competent authority of the home Member State where the issuer of the significant e-money tokens has been authorised, the EBA, ESMA, the competent authorities with supervision of the most relevant payments institutions, trading platforms and custodians providing services in relation to the significant e-money token, the ECB if the significant e-money token is referencing euro and the national central bank in case the significant e-money token is referencing an EU currency which is not the euro. Competent authorities not belonging to the college may request from the college all information relevant to perform their supervisory duties. Article 44 also describes how EBA, in cooperation with ESMA and the European System of Central Banks, must develop draft regulatory standards to determine the most relevant payments institutions, trading platforms and custodians and the details of the practical arrangements of the college. These regulatory standards must be submitted to the Commission 12 months after the entry into force. Powers to issue non-binding opinions is conferred to the college in Article 45. These opinions can be related to require an issuer to hold a higher amount of own funds, an amended whitepaper, envisaged withdrawal of authorisation, envisaged agreement of exchange of information with a third-country supervisory authority etc. The competent authority of the significant e-money token issuer or EBA shall duly consider the opinions of the college and where they do not agree with the opinion, including any recommendations, their final decision shall contain explanations for any significant deviation from the opinion or recommendations.

Title V sets out the provisions on authorisation and operating conditions of crypto-asset service providers. Title IV Chapter 1, imposes requirements on all crypto-asset service providers, such as prudential safeguards (Article 47 and

Annex III), organisational requirements (Article 48), rules on the safekeeping of clients' funds (Article 51), rules on the information provided to clients (Article 52), the obligation to establish a complaint handling procedure (Article 53), rules on conflict of interests (Article 54). Title V, Chapter 2 sets out requirements for specific services: custody of crypto-assets (Article 56), trading platforms for crypto-assets (Article 57), of crypto-assets for fiat currency or for other crypto-assets (Article 58), execution of orders (Article 59), placement of crypto-assets (Article 60), reception and transmission of orders (Article 61), advice (Article 62). As asset-referenced tokens can be used as a means of payment, the payment transactions in asset-referenced tokens are also regulated, by reference to the provisions of the Payment Services Directive II (Directive 2015/2366) (Article 63).

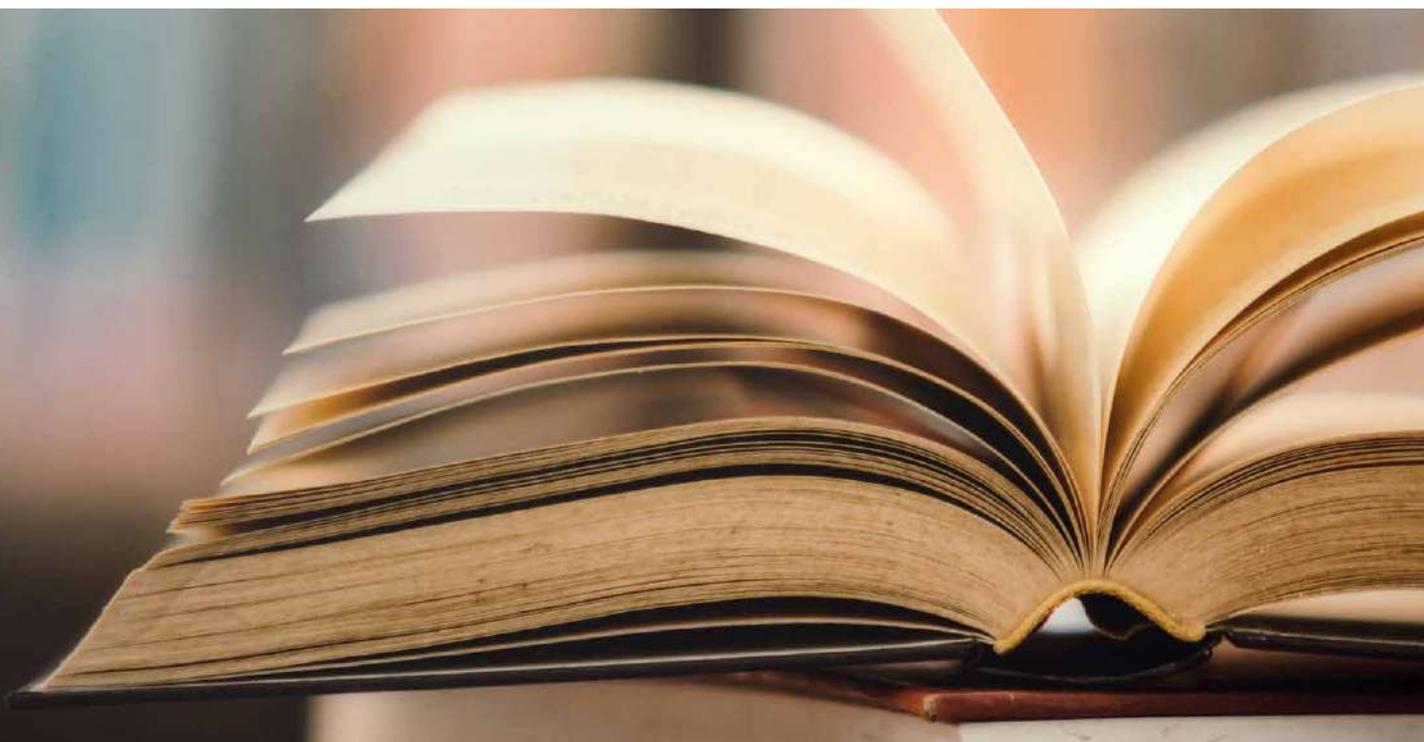
Title V, Chapter 3 defines the provisions on authorisation and supervision of crypto-assets service providers. These requirements highlight the required content of an application (Article 64), the scope of the authorisation, including the EU passport of crypto-asset service providers (Article 65), and the rights granted to competent authorities to withdraw an authorisation (Article 67).

The chapter also includes a mandate for ESMA to establish a register of all cryptoasset service providers (Article 66), which will also include information on the whitepapers notified by competent authorities. For the cross-border provision of crypto-asset services, Article 68 sets out the details and the way information about cross-border activities of cryptoassets should be communicated from the competent authority of the home Member State to that of the host Member State.

Title VI puts in place prohibitions and requirements to prevent market abuse involving cryptoassets. Article 69 defines the scope of market abuse rules. Article 70 defines the notion of inside information and indicates that an issuer whose crypto-assets are admitted to trading on a trading platform for crypto-assets shall disclose inside information. Other provisions of the title ban insider dealing (Article 71), unlawful disclosure of inside information (Article 72) and market manipulation (Article 73).

Title VII provides details on the power of national competent authorities, ESMA and EBA.

Title VII, Chapter 1 imposes on Member States the obligation to designate one or several competent



authorities for the purpose of this regulation, including one competent authority designated as a single point of contact (Article 74). Chapter 1 also sets out detailed provisions on the powers of national competent authorities (Article 75), cooperation between competent authorities (Article 76) or with ESMA and EBA (Article 77), and on precautionary measures that can be taken by national competent authorities of host Member States (Article 82).

Title VII, Chapter 2 details the administrative measures and sanctions that can be imposed by competent authorities (Article 85), including the publication of decisions (Article 88) and the reporting of penalties to ESMA and EBA (Article 89). Title VII, Chapter 3 sets out detailed provisions on EBA's powers and competences related to the supervision of issuers of significant asset-referenced tokens and significant e-money tokens, including legal privilege (Article 91), request for information (Article 92), general investigations (Article 93), on-site inspections (Article 94), exchange of information (Article 95), professional secrecy (Article 99), and supervisory measures by EBA (Article 100). Administrative sanctions and other measures, in particular, fines are detailed in Article 101, with the consequent Arti-

cles regulating periodic penalty payments (Article 102), the disclosure, nature and enforcement of fines (Article 103) and the corresponding procedural rules for taking supervisory measures and imposing fines (Article 104). Articles 105 and 106 set out the requirements on the hearing of

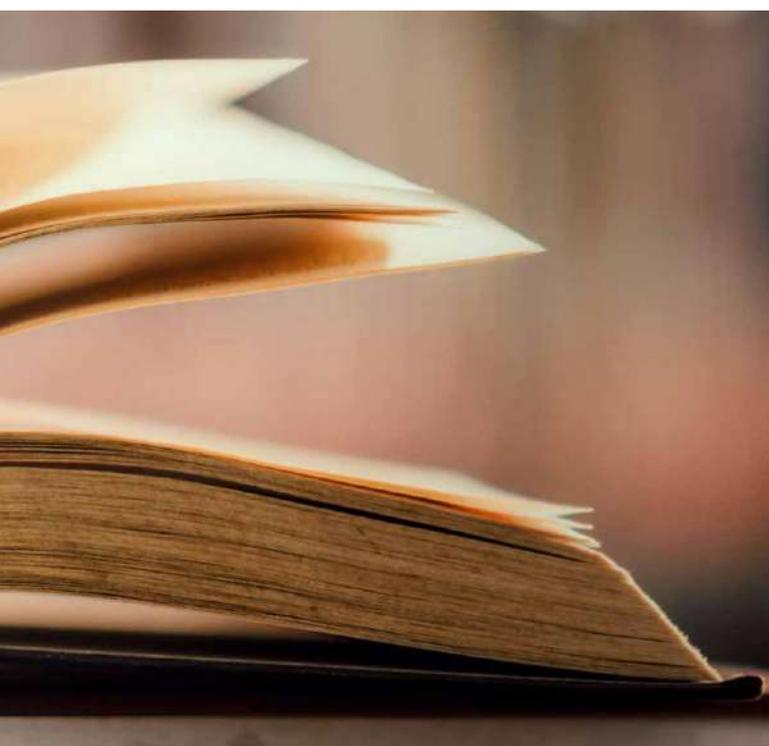
Administrative sanctions and other measures, in particular, fines are detailed in Article 101

persons concerned and the unlimited jurisdiction of the Court of Justice over EBA's decisions, respectively. In accordance with Article 107, EBA should be able to charge fees to the issuers of significant asset-referenced tokens and significant e-money tokens based on a delegated act adopted pursuant to the Regulation.

The exercise of the delegation with a view to adopt Commission's delegated acts is covered in Title VIII. The proposal for a Regulation contains empowerments for the Commission to adopt delegated acts specifying certain details, requirements and arrangements as set out in the Regulation (Article 109).

Title IX includes the transitional and final provisions, including the obligation for the Commission to produce a report evaluating the impact of the regulation (Article 110). Transitional measures include a grandfathering clause for crypto-assets issued before the entry into force of this Regulation, with the exception of asset-referenced tokens and e-money tokens. Article 114 indicates that this Regulation shall enter into application 18 months after its entry into force, except for the provisions related to e-money tokens that shall enter into application on the date of entry into force of this Regulation.

We look forward to continue working with INAT-BA in the forthcoming months. Thank you very much for your attention and support; hope you enjoy next intervention within this Token World Conference.





Building next-generation institutional Digital Market Infrastructures

Tim Grant.

Head of Business, SDX (SIX Digital Exchange AG), Zürich, Switzerland*.
Enterprise Ethereum Alliance (EEA) Board member.

I. FOREWORD

Thank you for your kind invitation to speak in this Token World Conference at Comillas University.

Today I'm going to speak about what we're doing at SDX, Six Digital Exchange, but I will also talk a little bit about the cultural mindset elements that we need to think about as we move from the traditional financial market, which is very much a 20th century construction, to a 21st century construction which is really what this Conference is all about.

You all know that the tokens and the digital assets that represent value also represent the future, and

in SDX we hope to be one of the leading players in that space. In the next minutes I will try to give you with some key ideas to think about, so firstly I think that the thing to do to is to set the scene for SDX.

II. A NOTE ON SIX DIGITAL EXCHANGE

SIX Digital Exchange has been around for nearly three years. In July of 2018, the SIX Board and our new CEO, Jos Dijsselhof, announced the launch of the SDX (Six Digital Exchange).

I have been in this digital space, in particular the digital asset space, for six years. It has been that experience which makes me somewhat of a Di-

* Since August of 2021, Head of Europe of Galaxy Digital.



nosaur in this place, and I remember this announcement being very impactful. I remember it being something that we all paid attention to because it is a very bold statement by a traditional financial market infrastructure player, that we need to move into the future. But let us just be clear on who we are:

Today, SIX and SDX within it, represent the Swiss Stock Exchange, including the clearing houses and the SIX security central depository. Switzerland's national Central Securities Depository (CSD) is part of the Swiss Stock Exchange's comprehensive post-trade portfolio, providing complete Swiss and International Custody services.

Such services are provided by our centralized securities repository (CDS). We operate the payment rails for the Swiss National Bank, and if you add all the BME infrastructure, the exchanges subject to the CSD system that we took over, we have got a pretty significant foot-

print of traditional infrastructure, a centralized infrastructure.

III. THE OLD AND THE NEW MARKET INFRASTRUCTURES

We are in the business of listing and trading, and clearing and settling custody, managing payments of traditional assets. The SIX vision for SDX is to set the same infrastructure for digital assets. It is not just for regulated crypto-assets. There are not just regulated digital assets but actually all kinds of crypto-assets, regulated and not regulated.

But the statement I would like to make right at the beginning is that we are entering into a new medium. What do I mean by "new"? If you look at the best example I have, the one of other digital media, like movies, you can see Casablanca, one of the greatest movies of all time. It was the same movie when it was on film, when it was on the VHS video cassettes and the same movie on laser discs. If you remember those big things on DVD's and on Blu-ray, it is the same movie; or now when you look at streaming services like Netflix and iTunes, you will see the same movie, with the same content. It has not changed. Now what has changed is the medium, and in each step that I described there was a change. There were changes in some way in the distribution capability, in the cost structure, in the production structure, and the most significant and profound step for us was the move from Blu Ray interdigital. The Blu Ray was a digital medium; one would argue it had the highest quality sound, but it was still a physical product and then we moved to add an entirely new paradigm with iTunes and Netflix, new distribution mechanisms that became very big winners. There were also very big losers in that new paradigm, and that is the new world that we're now with digitization of markets. I think it is analogous to the shift that we are about to go through in global capital markets, as we move from the traditional (still somewhat digital) electronic trading in often dematerialized representations of assets, but still very much operating on the old rails of

the old 20th century. These 20th century contracts come back in many cases to the 1960s and 70s. It's time to change to this new medium that we're moving into, for it is going to give us a lot of exciting ways to evolve our capital markets. And it is going to result again in big winners and big losers. A big question is: in which category are we going to end up?

It's time to change to this new medium that we're moving into, for it is going to give us a lot of exciting ways to evolve our capital markets

IV. ATTRACTING GLOBAL INTEGRATED INSTITUTIONAL LIQUIDITY IN SDX

Talking about infrastructure is not sufficient; we must talk about liquidity, the main driver of market activity and progress. A market is liquid when gathering multiple buyers and sellers in an open system rejecting friction. The importance of global liquidity is what we have learned over the last few years. And from the phenomenon that is crypto we learn that there is now the ability to trade things 24/7 and globally. The jurisdictions are starting to fall away, and that is something that we need to work on as a global community over the coming years. How do we remove those barriers to global liquidity? That is what we're looking to solve here for that is a grand ambition that I just described, and we try to generate material and significant impact, but we have to do it in small steps. This is our mantra and I'm going to describe what are we actually doing to get to that grand ambition.

To attract global integrated institutional liquidity by the network and ecosystem. That has always been the mandate given to SDX. And now as you will see, we are really walking the walk when it comes to this point today. We have got a building and exchange in Singapore now, and

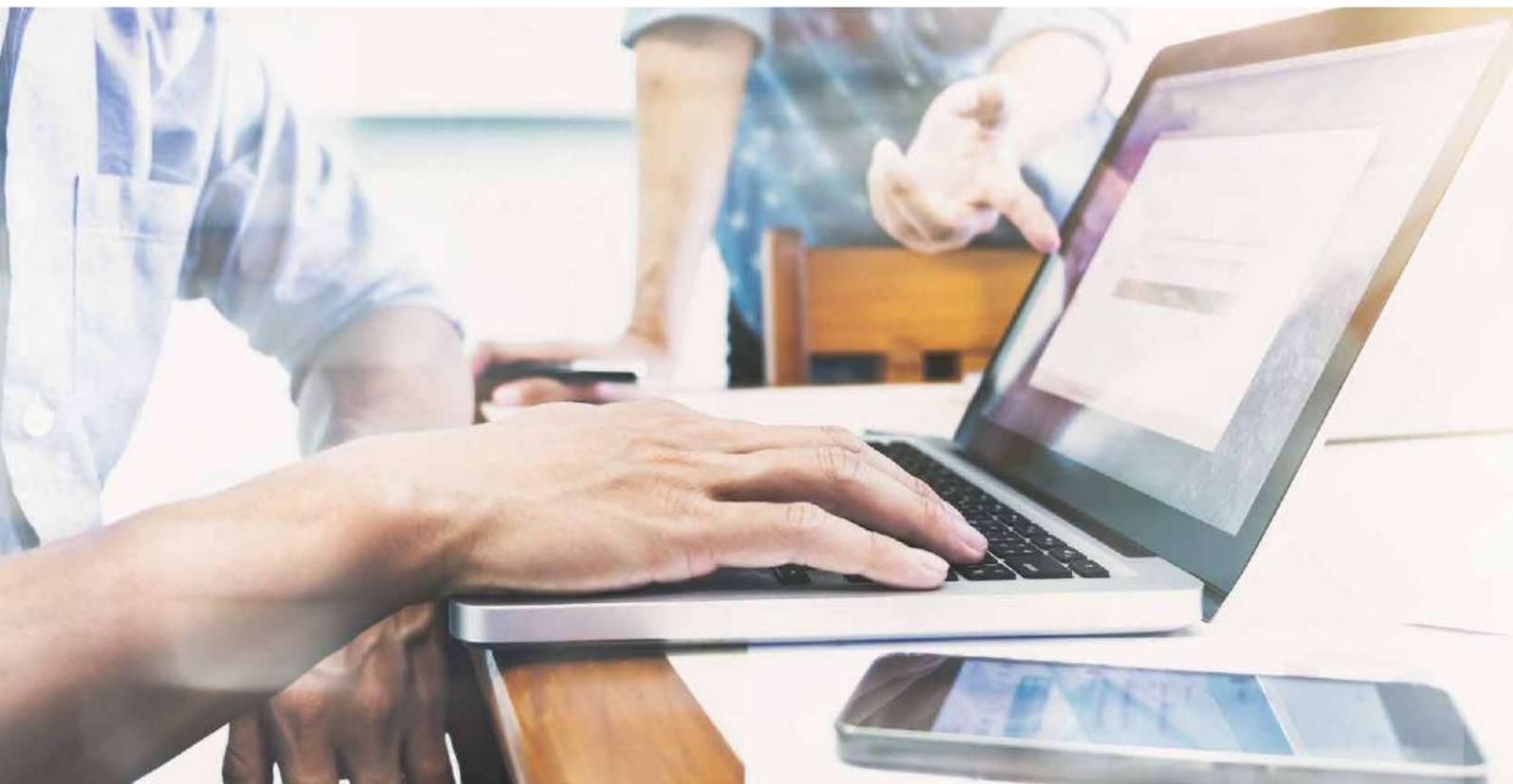
we can consider this an example of that we are going off to this global story, what we want to cover: in the earlier side of the transactions, the issuance and admission to trading; afterwards, the clearing the settlement of the transfer, and the custody of digital assets.

This is the goal that we have, to develop these products and services globally. For what types of assets in this way does the convergence trade that I talked about before? Public assets and private assets. Regulated securities and crypto assets. All the above. The beauty of this technology is that it allows us to put them all on the same rails with minimal idiosyncratic requirements for each independent asset class. This is what we will be looking to build – to break down the silos between asset classes.

Overtime this doesn't get talked about enough, especially in capital markets, but we also have to be very mindful of the fact that in order to get where we want to go we need to think about data collection and distribution, establishing who owns data and how the rights and obligations are exerted. Around the historic model, which is really dominated by Bloomberg, Reuters and other big players who are no longer re-

We need to think about data collection and distribution, establishing who owns data and how the rights and obligations are exerted

levant, these actors are the owners of the data. Should the controller of the data be who should have the economics of the data? This is not the model we have today, but this is our vision and it's a very grand ambition that we're driving towards when we ultimately have an architecture that we are building in our Zurich location: an exchange and attentional security supported repository specifically designed for the custody



of digital assets. We will build this sort of capability in multiple locations around the world, but we also want to recognize that interoperability. And again, another silo that will be broken down is regulated, versus the unregulated infrastructure that is going to be operating on the same kinds of rails that we use for regulated infrastructure. It is the same technology and we are in the business of providing those private networks or those networks what we call "network as a service" and we have to include that because this is going to allow me from neutralization of process on a grand scale where lots of institutions currently doing the same thing over and over again. Why wouldn't it be neutralized?

V. TOKENIZATION AND THE NFT MOVEMENT

We also want to look at non bankable assets that traditionally were not tradeable. Let us tokenize. The future is tokenization. We do not need to talk about that like it's something that is happening in the future; it's happening now, we're all seeing the Non-Fungible Token (NFT) movement. That is a real movement, and

it is going to continue its momentum. But also, token commodities like coffee, insurance-linked assets, etc. These are the non-bankable assets that we want to bring into this sort of network, and we want to be able to connect to the world around us.

This does not happen in one big blockchain just like the Internet is not one big network. It is actually a network of networks that are all interconnected; exactly how this future state is going to develop other blockchains: public chains, private chains, trading venues, pre-issuance capabilities, data and analytics... all of this should be integrated, that's why the term "integrated" matters, an integrated world around us that SIX Group is making, while traditional markets move aggressively and deliberately into this space.

These are the factors that DLT technology must consider. Technological change is accelerating competitive dynamics, increasingly fueled by digitalization. We have seen this especially in the last year (2020). One highlight I really want to outline is that there is an excellent paper by WB

Arthur, whom many of you may know, written in 1996 for the Harvard Business Review and it is around "increasing return". This is the concept that has been around for long a time, now over 20 years: the notion of first-mover advantage with leading technology that drives increasing returns and hedges you from getting driven out of your current business. This is the thesis that is guiding our activity, and this must be the principle that orients any commercial entity that relies on digital assets.

NFTs can represent assets in general and they can be traded in their specific exchange

NFTs can represent assets in general and they can be traded in their specific exchange. This is this is very core to our approach, and of course automation is key, but multi-sided platform generation is really what this is about. It is the new 21st century mindset views: building of networks as multi-sided platforms where everybody wins in some manner, where all the sides of the platform win. The rising tide lifts all ships; it is very much a part of the original crypto- relatively libertarian ideal.

VI. THE FORTHCOMING SIX - SDX BUSINESS MODEL

I think we can bring this in sanitized form into the global community and generate a better outcome for everybody. So, what does that mean for SIX if we look at the world and we believe in those assertions? That must mean that we can either make a do-nothing approach (and a lot of institutions are doing nothing and will do nothing and they'll probably be completely out of business) or see where a B2B business model is possible. This model is something that has been done in the US through their backed operation. We would not do that at SIX because we are owned by our clients, we are a bank-owned, bank-governed entity, so we will not go down that road; although I see it as a legitimate route, however we are instead going



to evolve. This is the thought process we had to go through to have the commitment to put significant capital into this business. So, what does it mean for us to win? Taking everything we have said until now, we need to think about and drive new business models.

We can assume that the 20th century business model is not going to work, and therefore we are going to move into the future state with a new mindset and new business models. We also have to attract global liquidity and we have to achieve those networks effects through multiple-sided platforms where new financial services are provided. We have traditionally had a very 20th century mindset, dominated by Friedman economics of the 1960s based upon the shareholder-primacy model in the short term. The adverse aerial dynamic that it generates does not correspond with the world we live in now, which is much more an ecosystem where everybody expects the rising tide. That means in reality that we need new processing paradigms and new types of assets and new marketplaces with new products and services.

Building operational leverage is exactly what we do. This means on a company level that we



know tokenization. What this means for a company like SIX is we're moving from the traditional model where we only service traditional bonds and equities to a new model where we have incremental revenues at group level from these new assets (crypto-assets).

It is crucial to disrupt ourselves. We look forward to transition from the existing business to the digital business overtime, on our terms and in a controlled way. This is a discussion that we have with our board of directors on a regular basis, for it is a very bold move.

Now I want to introduce a new concept that has become very powerful in our dialogue with the marketplace: the notion of the "cold start". Why do I use the term? Let us just look at a new marketplace in different formulations. I have this marketplace here where a new asset or instrument is traded on an existing infrastructure (the Swiss Stock Exchange e.g.). We said we want a new asset, and we want to trade it, with zero liquidity initially, so I need to solve that problem. To solve it I need to have the market makers, the connectivity, and the regulated status. I need to have the trusted secure operational capability. Therefore, I apply for a market structure model

and I can solve the problem: I can generate liquidity.

This is not trivial, but tractable. If I had an existing asset class but at this time I do not have any liquidity on my platform, but I do have a marketplace ready to go, and I have a regulated status, now I just need to put in place incentives to bring market makers and issuers to the platform. This has been done many times over the last few decades (e.g., turquoise CLS in the FX where market members exchange in the US most recently all goods; Coinbase, which is about to become the largest exchange in the world).

What about our situation for crypto non-regulated digital securities and about the future of debt and equity and other assets in this world in the 21st century? We have no infrastructure and no assets, we have no liquidity and no market makers, the market simply does not exist. There is a lot of fragmented work which has pushed the envelope, but we don't have a focal point to be able to generate an outcome. This is fundamentally a "cold start"; to be able to get beyond that cold start we must ignite the marketplace and we are putting a lot of focus on igniting the marketplace and finding novel

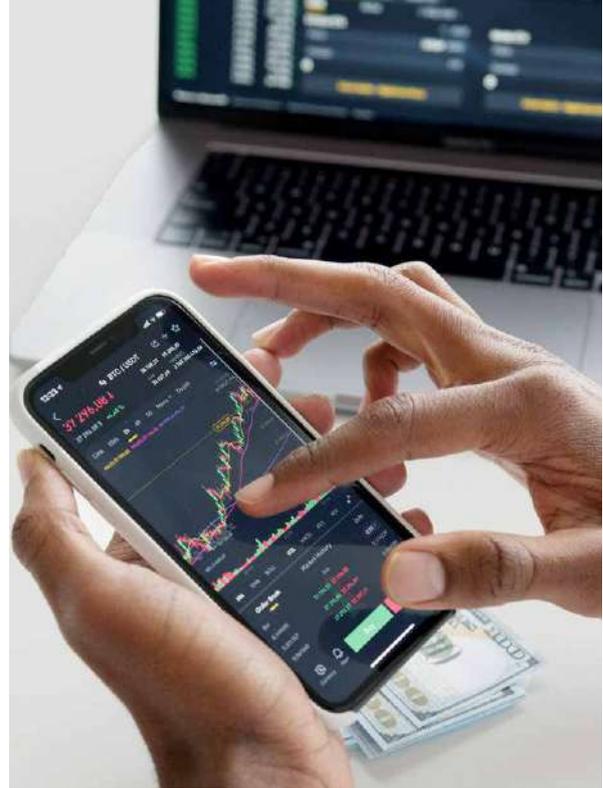
ways to bring big market participants to our platform.

So, what are we doing today? We have now spent nearly three years building this platform and it has been a very long and a very expensive journey, but that's because we're building to a very high bar to be regulated by FINMA, the Swiss regulator. We are going for licenses for our exchange and CSD which are at the same level as the SIX exchange and CSD we currently run, so that has taken up 2018 and 2019; 2020, last year, was a pivotal year for us when we showed that we could deploy the technology wherein the regulator could work with us in partnership, and we validated the commercial aspects of what we are doing in 2021, a huge year for us.

Last year, was a pivotal year for us when we showed that we could deploy the technology wherein the regulator could walk with us as well in partnership

I am delighted to say that we delivered everything that we needed to the regulator last week, so we are now in a waiting phase to see when we get the licenses to go live and actually start to generate commercial outcomes and start. The journey to materialize this grand ambition implies this vision where we have needed to build big pieces to have a trading system in exchange built on the same trading technology that is used in the Swiss Stock Exchange.

We use a Nasdaq matching engine, and we have a centralized limit-order book. We are going to support other market models though, but the one thing that we are going to support is an integrated trading and settlement mechanism. This is where this notion of "atomic settlement" comes in. I have a digital asset (token), I



have a digital representation of money (tokenized money), and I can instantly exchange that: no need for clearing, no need for credit risk.

This is a huge advance and a massive potential reduction in friction, but it will not be realized overnight. We have built a system that can do it now, and we are going to have to have markets with automated data evidence and market-data public attention, just like in traditional venues, but the real innovation that we have generated is a CSD securities depository built on blockchain. This has never been done before, never at this institutional scale in a regulated format, using our Corda blockchain platform, deployed, tested and ready to go.

That means that we will be able to tokenize assets natively on our blockchain and manage the lifecycle of those assets on our CSD. The CSD links directly to our trading system, but it also allows us to link to a tokenized model of trading as I said before. We are looking at central bank digital currency for payments (CBDC), but we can also use stablecoins for the transaction payments, or commercial money of any kind, so I'll leave it at that.

VII. CONCLUSION: THE FUTURE OF SDX

What turns SDX into a marketplace with a commercial proposition? I am very excited to say that

over the next few months in 2021 we will show a full marketplace, end-to-end operational. We will have bonds being issued in 100,000,000 Swiss francs and above.

With large Swiss corporate issuers, we will be using traditional and digital hybrids, and we want to demonstrate that we have large banks working with us on the syndicate side. We have custody banks working with us all on our infrastructure for listing, trading, settlement and custody of natively issued digital assets, all on the blockchain, so as to enter for the first time ever into a regulated manner.

The first issuer will be SIX Group: we are going to issue our own debt on our own platform. So that is a very exciting evolution of the token space. Everything I have talked about is executed in a sort of regulated digital-asset framework, and we are also looking at the advent of the CBDC, something that we have worked long hard with the banks for international settlements (BIS). At the tail end of last year, we were moving the project into the second phase and we are now getting to a point where we work on cross-border central manager currency work. Crucially we are using production technology to do that, so this is not Proof-of- Concept in terms of technology, it is real-production grade technology and

we anticipate, we will be one of the first in the world to do this.

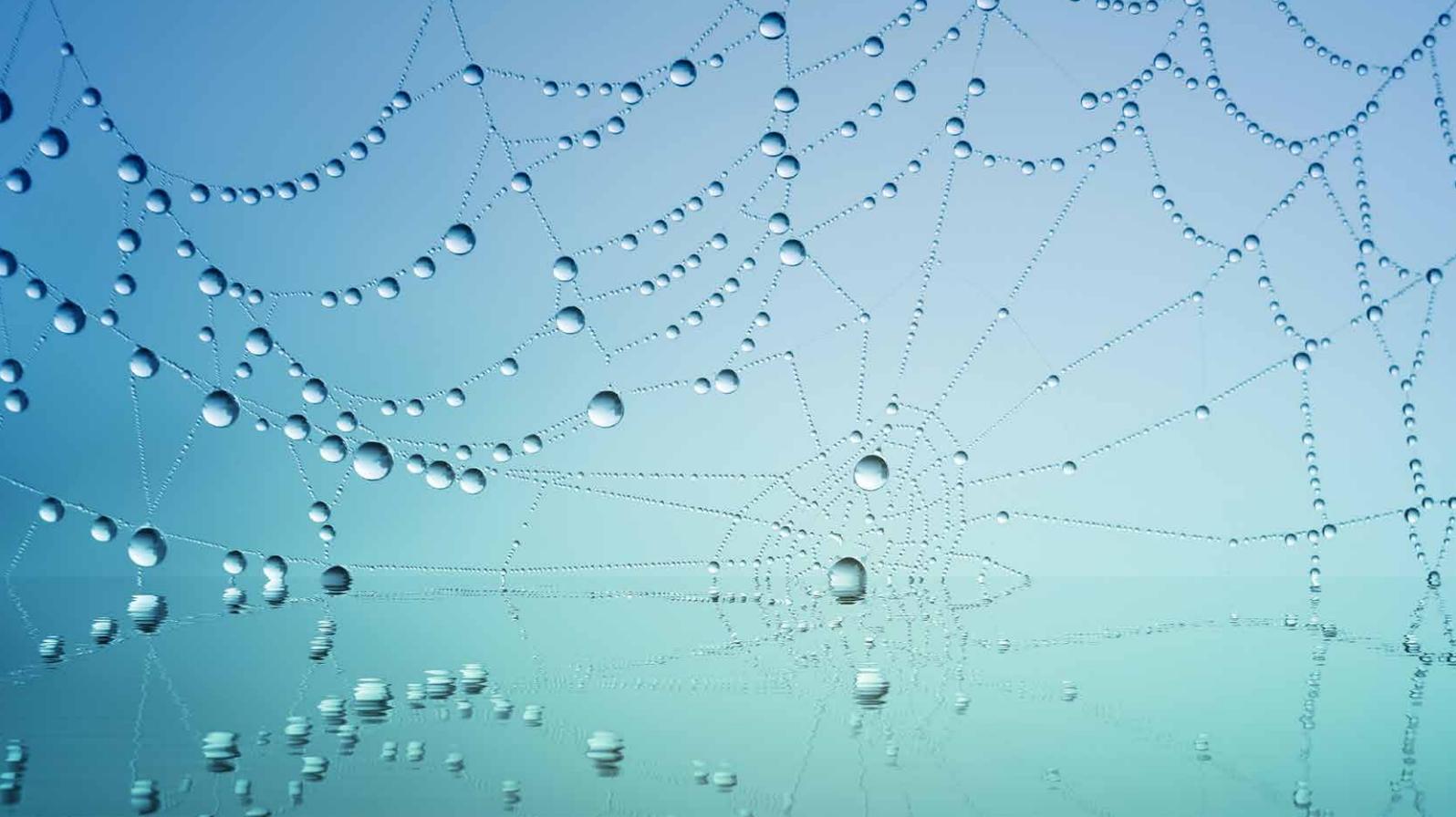
Crypto is where the traditional world and the new world become complete. I love the image showing what big Morgan Stanley, JP Morgan, Goldman Sachs, PayPal and Visa said a few years ago: fairly unflattering statements about crypto-assets and markets. Now let us look at the statements they have made in the last few months. No surprise to anybody. I suspect that paying attention here is becoming an institutional response.

For a classic marketplace it is dangerous to think of crypto as some sort of unregulated backwater where their institutions are not playing. This is changing fast and no better illustration for that than Coinbase diagram: Coinbase had about 20 % (10% institutional) of players in 2018; now 75% of their volumes are institutional. So, they may have 56 million clients, but the volumes are institutional. For that reason, we are going to get into that space and we are going to be driving what I call convergence.

The Holy Grail is that removal of the unnecessary silo between crypto-assets and non-crypto assets. Cryptos are just assets.

Thank you very much.





Token business models and the financing with venture capital

Matthias Fischer.

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Technology Georg Simon OHM.

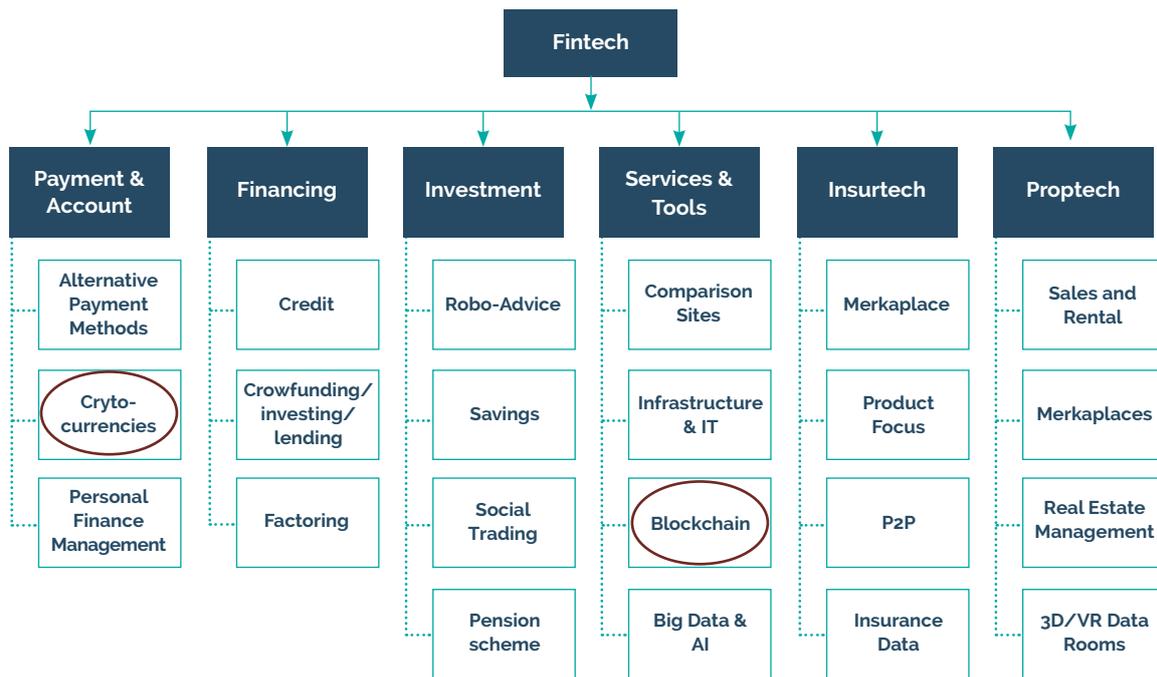
I. FOREWORD

Distributed ledger technology (DLT) has the potential to disrupt each and every business model. Blockchain and Cryptocurrencies have provided the basis for new fintech business models and many start-up companies. This article compares the venture capital financing for fintechs in and Cryptocurrencies with other fintech areas like alternative payments, robo-advisory, crowdfunding, credit & factoring, social trading, personal finance management and Artificial Intelligence.

The study shows an international comparison on a global level and covers Europe, the U.S., and China. Ten years of financing rounds for fintechs have been analyzed for ten different fintech segments.

It is important to look at the financing rounds with venture capital to get a better understanding of the growth perspectives of Token business models in particular. The evolution in recent years of the increasing financing amounts negotiated by token fintechs reflects the growth perspectives in the business models seen by investors.

Figure 1. – Fintech Markets and Players: Classification of Fintechs.



Source: Matthias Fischer, Fintech Business Models, Berlin/Boston 2021. ©Copyright Mathias Fischer. All rights reserved. Fintech Business Models. www.degruyter.com/view/title/579910

The study analyzes two different financing periods for venture capital financing: April 2000 until June 2017 with a focus on Europe and the U.S., and the period January 2017 until April 2020 with a global view and a comparison of Europe, the U.S. and China.

Three hundred seventy-nine fintechs in Europe and the U.S. were identified in our empirical study with relevant data on financing rounds and valuation between April 2000 and June 2017.

In the sample analysed, 23 companies financed with venture capital had been identified for blockchain and cryptocurrencies. Existing databases differ in methodologies and due to the relative lack of disclosure surrounding venture capital it is difficult to paint in definitive terms the volume of financing amounts. Compared to Europe and the U.S., the venture capital rounds for Blockchain and Cryptocurrencies in China started several years later, but with very high amounts of money raised and high company valuations.

Figure 2. – Average Money Raised and Total Number of financing Rounds per Segment. from January 2017 - April 2020 (in € m)



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Financing with venture capital in Blockchain and Cryptocurrency fintechs strongly differentiate from other fintech business models. From January 2017 until April 2020 the average amount per financing round was the highest for payment fintechs followed by personal finance fintechs. Fintechs in blockchain and cryptocurrency had relatively many financing rounds, but the money invested per round was relatively small. One reason should be that Token business models started several years later than fintech business models in payments or personal finance.

Payments had 600 financing rounds, blockchain had 466, Cryptocurrency 313 and crowdfunding only 99 rounds from January 2017 until April 2020. It is significant to observe the relatively low level of rounds for older fintech segments like crowdfunding and the relatively high number of rounds for Token business models as a relatively young fintech segment.

This shows with enough clarity that Token business models just started with high venture capital investments in 2017, and also that venture capital funds have high expectations regarding their potential of value creation.

II. WORLDWIDE DEVELOPMENTS FOR VENTURE CAPITAL FINANCING AND THE BLOCKCHAIN START-UP LANDSCAPE

The global venture capital investments for 466 blockchain fintech financing rounds from January 2017 to April 2020 show that the fintech area of Tokens is one of the most dynamic fintech segment worldwide. Overall, more than \$2.3 billion were invested in blockchain fintechs in only three years with a pre-money valuation of \$29 billion. So the pre-money valuation was around times higher than the financing amount. The median amount raised per fintech financing round was \$1.4 million in the U.S. and \$0.7 million in Europe.

Figure 3. – Median amount raised in Blockchain & Cryptocurrencies in Europe and the U.S. for sample April 2000 - June 2017 (in € m)

	Seed	A	B	C
Overall Median	14	12.0	141	439
Median Europe	0.5	5.7	35.9	n/a
Median U.S.	2.0	16.4	10.1	43.9
Sample size n	13	12	4	2

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U.S. blockchain & cryptocurrency fintechs appear to raise significantly higher funds in the early stage, which is evidenced by the U.S. seed median of €2.0 million being four times the European median.

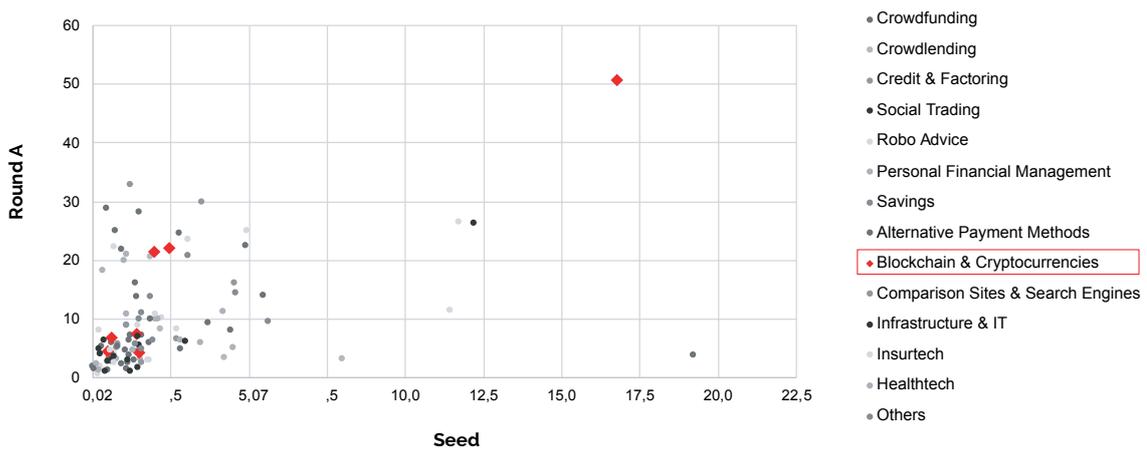
European and U.S. blockchain fintechs achieve a large increase in their round A funding compared to the seed investment. However, the U.S. managed to raise 183% more in this comparison than the European counterparts (817% vs. 634%). This gap widens to 237% for the round A/B comparison, as the U.S. median is 288% and the European median is 57%. This finding is in line with the previous finding that U.S. fintechs manage to secure higher earlier stage funding than fintechs in Europe.

III. THE MEDIAN TIME BETWEEN TWO SUCCESSIVE FINANCING ROUNDS FOR BLOCKCHAIN AND CRYPTOCURRENCY FINTECHS.

U.S. blockchain & cryptocurrency fintechs have less problems in securing early stage financing than their European counterparts. This is evidenced by the comparison of seed and round A as well as the round A/B comparison in both of which the U.S. requires less time to close the next financing round.

This fact is particularly underlined by the difference of more than two years in medians (Europe 2.7 years vs. U.S. 0.6 years). The good news for venture capitalists is that both regions are not mature regarding blockchain & cryptocurrencies yet.

Figure 4. – Comparison of total money raised between seed round and financing rounds A. for sample April 2000 - June 2017, n=146 (in € m)



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IV. PATTERNS IN FUNDING SIZE OF SUCCESSIVE FINANCING ROUNDS

The vast majority of fintechs raises up to €2.5 million in the seed round and as much as €10.0 million in the subsequent financing round A. All apart from nine fintechs raised at most €5.0 million in the seed round, before raising up to €30.0 million in the following round.

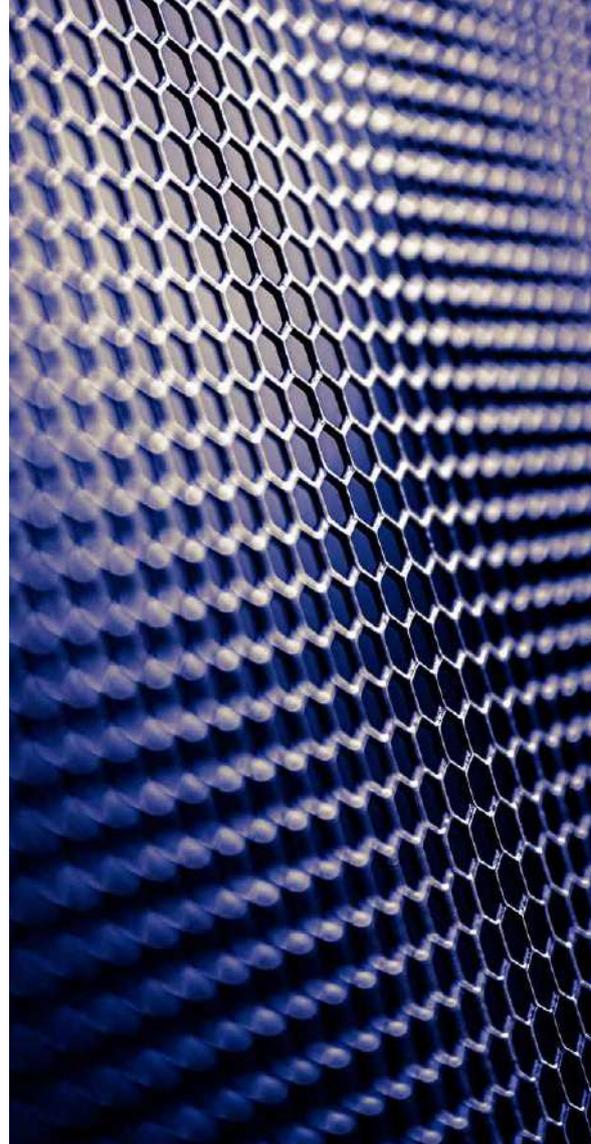
One striking element is that alternative payment methods account for three of these larger A-rounds between €24.7 million and €28.8 million after seed investments varying from €0.4 million to €2.8 million. Out of the nine outliers, one fintech in Blockchain and Cryptocurrencies achieved the highest amount raised in financing round A with €50.8 million, after having initially raised €16.8 million in the seed round. The company was US-based Blockstream.

V. COMPARISON BETWEEN FINANCING ROUNDS A AND B

Most of the fintech start-ups raise up to €10.0 million in financing round A and €40.0 million in the following round B.

However, the number of fintechs that raise an amount that is outside of the range of the majority of fintechs significantly increases in comparison to the seed round and financing round A. For instance, the number of outliers rises from nine in the seed and A-round, equaling 8.6% of the sample, to 30 for the financing rounds A and B (20.5% of the sample).

Consequently, one finding is that deviations increase over time. Within the outliers, one fintech in Blockchain and Cryptocurrencies managed to raise €61.0 million in financing round B after receiving €18.1 million of funds in the prior round. This amounts to growth in amount raised of more than 237.01% from one round to the other. This fintech was US-based Coinbase. Coinbase received €0.5 seed financing and €4.7 round A financing. They went public on 14th of April 2021 with a valuation of nearly USD 100 billion.



VI. CONCLUSION

As a final conclusion obtained from this analysis we can state that:

- a) Token business models get a relatively fast financing in the last years compared to other fintech segments.
- b) The median financing amounts are still relatively small compared to other fintech segments like the payments area.
- c) Notwithstanding this, we can affirm that the number of financing rounds can be globally considered to be very high.

Sustainable asset referenced tokens: **regulatory and technical aspects**

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I. INTRODUCTION

DLT (Distributed Ledger Technologies) and crypto-assets can be useful tools to the sustainable economy, with a lot of room to create new business models and generate value for our society. To better understand the possible use cases and their specific regulation issues, it is important to briefly discuss the possibilities brought by the technology.

By using smart contracts deployed on the corresponding layer of a DLT network, it is possible to design customized solutions, including specific distributed ways to transfer value without the support of intermediaries. In order to achieve a large-scale use and massive network effects, it

is important to deal with standards, which among many benefits, promote interoperability of different DLT systems and services and make easier to people understand and compare different solutions.

The DLT-based tokens to represent existing assets or to create new natively digital assets can be classified as fungible and non-fungible. According to NIST¹, fungible tokens are meant to be completely interchangeable. Fungible tokens do not have special rights or behavior associated with them. In contrast, non-fungible tokens (NFT) are associated with unique identifiers, meant to identify things or data uniquely.

¹ <https://nvlpubs.nist.gov/nistpubs/ir/2021/NIST.IR.8301.pdf>

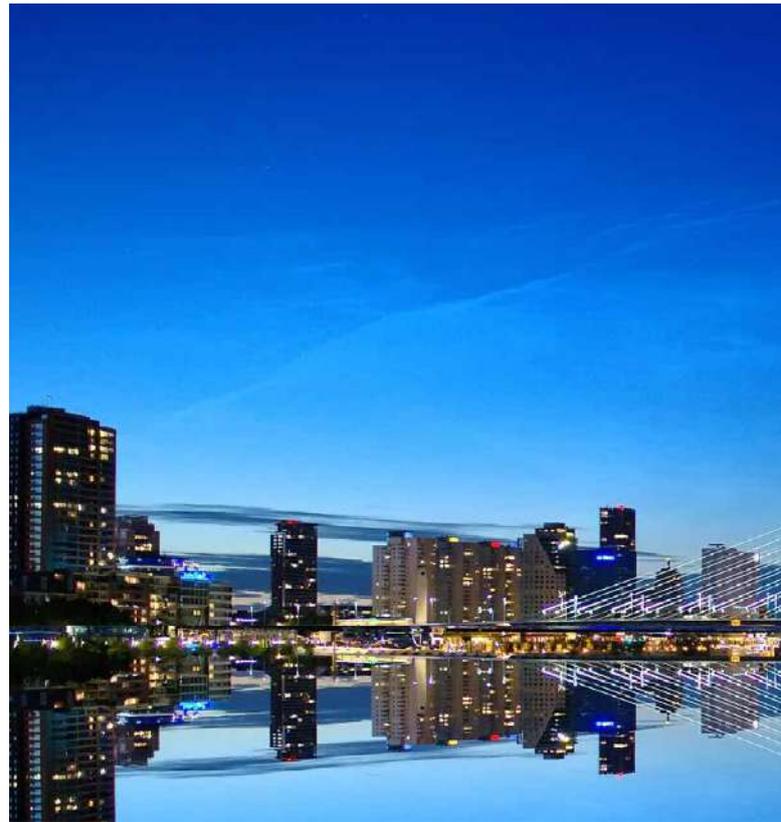
II. FUNGIBLE TOKENS

ERC-20 is a very well-known standard of fungible token, created inside the Ethereum community in 2015². Concepts associated with an ERC-20 token are the balance of each account, the action of transferring a defined number of tokens from one account to another, authorization to enable a third party to transfer a limited number of tokens and information about the supply of issued tokens. The standard defines how to interact with such tokens (i.e., the API) but the real implementation can vary. Nevertheless, there are some ERC-20 implementations used by the community, like the one developed by OpenZeppelin³.

Fungible tokens can be used to create digital coins and enable payment systems. In fact, ERC-20 had a key role to the rising of ICO (Initial Coin Offering) in 2017/2018 and DeFi (Decentralized Finance) since 2020. However, the same concept of fungible tokens can also be applied in other business domain, in particular in sustainable use cases. Let's examine a specific one, the domain of commodities.

Merriam-webster⁴ defines commodities as an economic good product such as (a) a product of agriculture or mining, (b) an article of commerce especially when delivered for shipment, (c) a mass-produced unspecialized product. Investopedia⁵ describes commodities as a basic good used in commerce that is interchangeable with other goods of the same type. Commodities are most often used as inputs in the production of other goods or services. The quality of a given commodity may differ slightly, but it is essentially uniform across producers.

From the above definitions, we can derive the concept of unspecialized, interchangeable and uniform. These concepts indicate the possibility of using fungible tokens to digitally represent commodities in different use cases. In fact, this idea can be applied in use cases involving



traceability of agriculture or mining products⁶. Fungible tokens can be applied in the context of trade finance⁷, carbon credits and green digital assets^{6,8} and even recycling⁶.

III. NON-FUNGIBLE TOKENS (NFT)

The history of non-fungible tokens is more recent. The most well-known standard to this concept is ERC-721⁹. Main concepts associated with an ERC-721 token are the identity of the token, the action of transferring a specific token from one account to another and the authorization to enable a third party to transfer a specific token. The concept of balance of in ERC721 means how many different tokens – each one with its own identity - an account has. Similar to ERC-20, the ERC-721 standard defines how to interact with such tokens (i.e., the API) but the real implementation can vary. OpenZeppelin³ also provides an example implementation of this standard.

² Fabian Vogelsteller, Vitalik Buterin, "EIP-20: ERC-20 Token Standard," Ethereum Improvement Proposals, no. 20, November 2015. [Online serial]. Available: <https://eips.ethereum.org/EIPS/eip-20>

³ <https://github.com/OpenZeppelin/openzeppelin-contracts>. ⁴ <https://www.merriam-webster.com/dictionary/commodity> ⁵ <https://www.investopedia.com/terms/c/commodity.asp>

⁶ DLT use cases, <https://www.itu.int/en/ITU-T/focusgroups/dlt/Pages/default.aspx> ⁷ <https://azhos.io/products> ⁸ <https://moss.earth/en/home/> ⁹ <https://eips.ethereum.org/EIPS/eip-721>



A pioneer case of this standard was CryptoKitties¹⁰, a game to purchase, collect, breed and sell virtual cats. The real innovation was that the cats were digital assets that the owner could use even outside the game, creating a new market of crypto-collectibles¹¹.

In the last months, NFTs are being increasingly explored by artists, as a new way to receive money without traditional intermediaries and it seems that a huge market is beginning. For example, an NFT representing a visual art was recently sold by US\$69million¹². In fact, NFT may be used to represent unique and irreplaceable things, like arts, virtual collectables, intellectual property and physical products.

When used as a form to represent sustainable products, NFTs can revolutionize their respective markets. We can cite the example of premium wine production and commercialization¹³. It is possible to design a solution with NFT whe-

NFT may be used to represent unique and irreplaceable things, like arts, virtual collectables, intellectual property and physical products

re the lifecycle of the wine is tracked, providing much more information than the one available in physical markets, for buyers and for owners. Currently, there is at least one example of new platform that has been proposed to deal with e-commerce supply-chain issues¹⁴.

IV. PURPOSE-DRIVEN TOKENS

Tokens can be used as a coordination tool to incentivize sustainable behavior, providing indi-

¹⁰ <https://www.cryptokitties.co/> ¹¹ <https://opensea.io/>

¹² <https://www.forbes.com/sites/abrambrown/2021/03/11/beeples-art-sells-for-693-million-becoming-most-expensive-nft-ever/?sh=15d42d482448>

¹³ https://www.ey.com/en_gl/news/2019/11/ey-blockchain-platform-supports-blockchain-wine-pte-ltd-to-launch-tattoo-wine-marketplace-across-asia-pacific ¹⁴ <https://splytcore.org/>



vidual benefits as well as collective gain. Depending on the model, these tokens can be classified fungible or non-fungible.

According to Voshmgir¹⁵, purpose-driven tokens incentivize individual behavior to contribute to a collective goal. This collective goal might be a public good (i.e., goods that any individual can use without paying for them, and where use by one individual does not reduce availability to others, e.g., electricity grids, payment infrastructure) or the reduction of negative externalities to a common good (e.g., air, forest and natural resources). Voshmgir references real projects to avoid CO₂ emissions by incentivizing the use alternative transports; to produce and to consume renewable energy, to use less energy by using energy-efficient devices or reduce its use; to plant trees, to clean a beach, to reduce food waste and others. This is a very new and promising field of research.

V. SOME ADDITIONAL CONCERNS

When dealing with real products (e.g., commodities or wines), it is crucial to consider how to link the real asset and its DLT representation. This is sometimes referred as a last mile pro-

blem and it is essential to keep the quality of the information¹⁶.

It is common to use IoT to improve the quality of the collected data, avoiding manual mistakes and sensing environment information such as temperature and pressure. It is worth to highlight that IoT is not able to solve the issue of trust when inputting the informatiozn, so there should be additional solutions like certifiers if it is necessary to deal with that. A possible issue would be to guarantee that physical good really exists in reality as described.

A second issue related to NFT is how to identify a physical product. The ideal solution would be to derive some information from the asset itself - a kind of fingerprint that uniquely identify it. It may be not easy to get in real life, so some kind of artificial identification is many times necessary. A common way to deal with that is to attach a kind of label to the physical goods. For example, QR Codes are very used since it can be easily read by machines.

Finally, DLT is considered a foundational technology with large network effects^{6,17}. The real value of the new business models running on top of it will be higher with increased user adoption.

¹⁵ Shemin Voshmgir, *Token Economy: How the Web3 reinvents the Internet*, second edition, 2020. ¹⁶ <https://hbr.org/2018/06/what-blockchain-cant-do>

¹⁷ <https://hbr.org/2017/01/the-truth-about-blockchain>

VI. REGULATORY ISSUES

A) United States

Consumer (non-security) tokens, and their issuing, are valid in US, wherein they are considered utility tokens to be used by consumers on a DLT platform, and not as investments seeking return in the sense of the Howey Test (as set forth in SEC v. W.J. Howey Co.).

Other utility tokens, like those offered by Munchie Inc. in December 11 of 2017, though serving a utility function, have been considered by the SEC as securities, since they were marketed as investments amid regular purchasers of digital assets, despite the utility design features of the cryptos. So, if holders are granted by the issuer a set of rights including financial interest in an enterprise, the crypto remains a security subject to SEC control; but if it is used to purchase goods or services in a DLT ecosystem, it does not. The key is the existence of a secondary market animated by the issuer, coupled with a potential for investment profit. In the case of nascent platforms, tokens sold to develop it (or the network) become securities if the promoters' activity creates token value, and thus asymmetric information; asymmetry that is absent when the network is well decentralized.

The crypto remains a security subject to SEC control; but if it is used to purchase goods or services in a DLT ecosystem, it does not

US CFTC supervises commodity American markets according to Commodity Exchange Act provisions, and since 2015 is active sanctioning firms afoul of regulatory requirements or committing market abuse in spot markets related to the token or virtual currency. In most cases, token sales to fund the dev of a token-based network are reputed investment contracts, irres-

pective of the name or kind of instrument materializing the sale.

Simple Agreement for Future Tokens (SAFT) instruments have tried to solve securities law issues, however raising other concerns, like the law applicable to the delivery of tokens for consumptive use (at once or about to the delivery of tokens to investing purchasers), and the possible conversion of (initially reputed) security tokens into utility tokens out of CFTC or SEC supervision.

Since cryptos are commodities in accordance to US Commodity Exchange Act –CEA– [Concannon, D. L., et al, "The yellow brick road for consumer tokens: the path to SEC and CFTC compliance", in (2019), Blockchain and Cryptocurrency Regulation, Global Legal Group Ltd., London, 104, text and note 26], the token presale conferring right to hold future tokens, or exchange or convert them into non-security tokens, can be qualified as a forward or option on commodities, both falling in CEA's wide definition of swap (derivative lato sensu) when there is no intention to deliver the underlying asset; being present such purpose, a general CEA exemption –Non Financial Forward Contract Exclusion– would be applicable, since the product would not be reputed a derivative.

Such exclusion does not apply to ICO/ITO primary market investors like hedge funds and other non-commercial investors out of the scope of commercial merchandising (e. g., agricultural producers or consumers).

B) European Union (MiCA Regulation)

The September 2020 Proposal of the Parliament and the Council for a Regulation on Market and Crypto-Assets foresees a thorough specific regulation of the so-called "stablecoins", which are a central focus of MiCA.(Titles III and IV). In particular, Asset-Referenced Tokens (hereinafter ARTs, which can be fungible or not in the sense described above) are regulated in Title III.

In particular, commodities can be an underlying referenced asset of such ARTs, designed to sta-

bilize the price of the commodity, among other aims envisaged by the issuer or the token platform managers or firm behind the affairs concerning the cryptos.

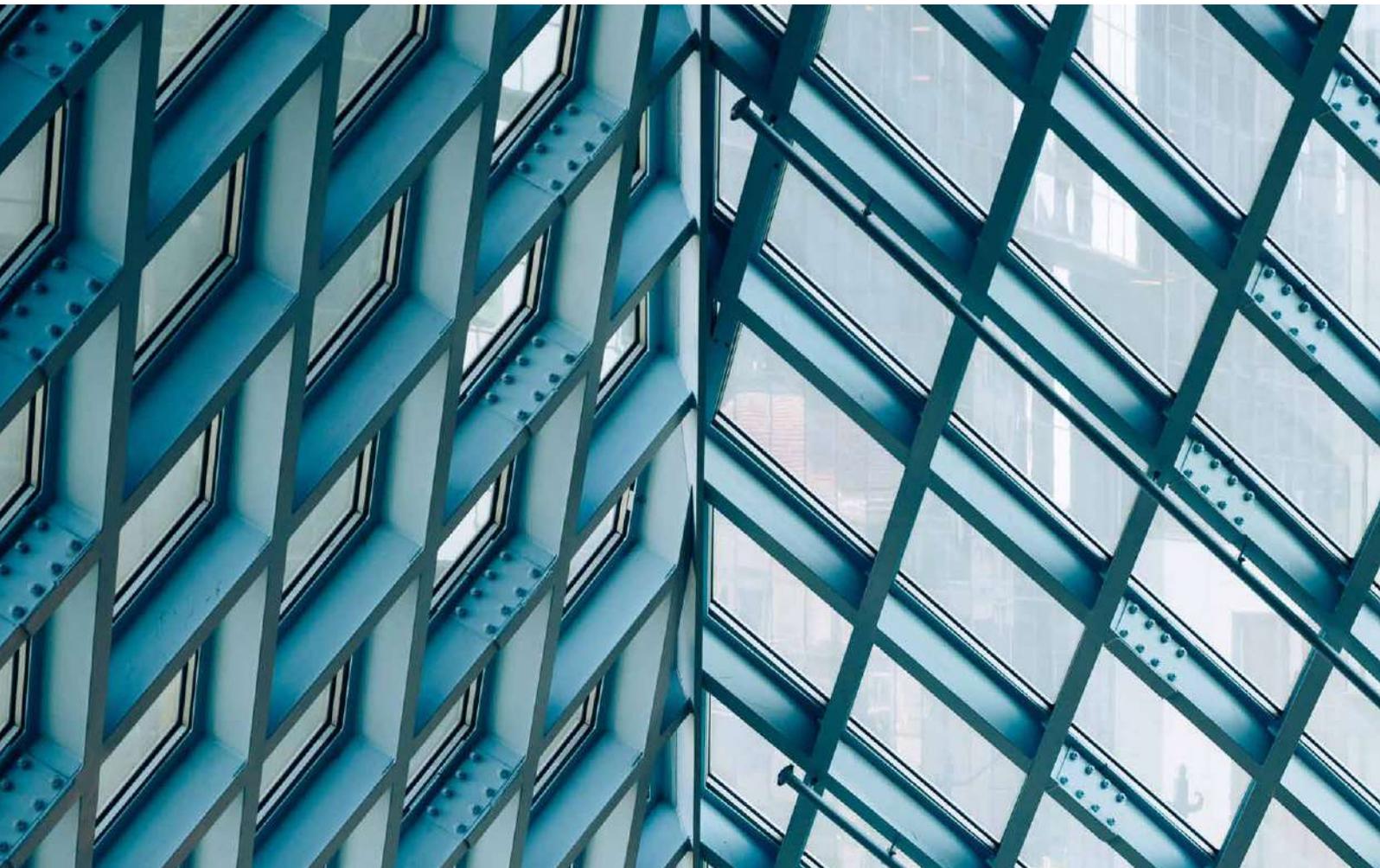
When the European Commission or National Competent Authorities estimate that the token is small or "modest" for global markets, they will be not considered "significant" in the sense of MiCA regime, and such tokens cannot be reputed "global stablecoins" (like Libra and successors) nor disturb the financial stability of the European markets.

The extensive regulation proposed for MiCA ARTs exceeds largely the scope of this article, but we will preliminarily outline that:

a) MiCA does not define stablecoins but covers two kinds that are "often described as sta-

blecoin" (page 11) and meant either for exchange (market transacting) or for payment purposes. As covered in title 1, there are ARTs and e-money tokens (EMTs) encompassed within the concept of stablecoins, thus being a regulatory target in order to prevent financial instability, market imbalances and attacks against monetary sovereignty.

b) Asset-referenced tokens can refer to one or more commodities, alone or with several fiat currencies for stability purposes. Such ARTs can be used for investment purposes, for the acquisition and maintenance or holding of the underlying referred asset, or as a hedging or arbitration device in the cross-market (underlying of the represented commodity, and token derivative) gaming of transactions.



- c) There is no limitation for any underlying commodity to become a reserve asset tradable and deliverable to the token holder to cover the "derivative" transaction on the crypto, in the envisaged regime of MiCA (September of 2020 and May of 2021 amended versions).
- d) Thus, sustainable contracts on one or several commodities or one or several crypto-assets, or a combination of such assets, can be traded in MiCA regulated markets and platforms, backed by the so called "reserve assets", for social or communitarian sustainable purposes. They could also be traded as non-securitized DLT tradable tokens in accordance with the supervisory provisions of National Competent Authorities (NCAs) and those agreed among NCAs and EBA ESMA, the EU ultimate market supervisors in accordance with MiCA regime.

VII. CONCLUSIONS

As a foundational technology, DLT enable the creation of new business models, including models to sustainable economy. At the same time that these new technologies enable a profitable market, they also contribute to accelerate and amplify SDG (Sustainable Development Goals) attainment efforts⁶.

There are a lot of innovation in DLT, including the creation of new tokens standards. Some new proposals aim to address issues related to ERC-20 use, while trying to preserve backward compatibility. One example is ERC-777 that allows a better token management control. ERC-1155 was created in 2017 to manage any combination of fungible and non-fungible tokens.

MiCA regulation is incipient and poses legal doubts on NFT and commodity token regulations, probably solved in the forthcoming years by means of a combined task force as the MiCA Task Force of INATBA which helped to the improvement of the envisaged crypto-asset regulation, which excludes the trading of security-tokens considered "financial instruments" traded in regulated DLT marketplaces and multilateral regulated systems, as contemplated in the Market in Financial Instruments Directive (MiFID 2).

Token taxonomy in MiCA proposal and **data protection issues**

Xavier Foz. Teresa Pereyra
Lawyers. Roca Junyent.

I. TOKEN TAXONOMY IN MICA PROPOSAL

Beyond certain classification of the tokens offered by national regulators (some of them inspired in the pioneer criteria of the Swiss regulator FINMA), the MiCA Proposal¹ contains the first homogenous token taxonomy within the European Union.

This effort, whose initial outcome has been subject to certain criticism, has been undertaken with the goal of capturing as many of the present and future developments in the cryptospace as possible.

In this regard, crypto-assets are conceptualized in a very broad manner as a digital representation of value or rights which may be transferred

and stored electronically, using distributed ledger technology or similar technology.

Based on these features, MiCA expressly defines the following three types of crypto-assets that, inter alia, are to be subject to its regulation:

- **Utility tokens:** meaning a type of crypto-asset which is intended to provide digital access to a good or service, available on DLT, and is only accepted by the issuer of that token.
- **Asset-referenced tokens:** meaning a type of crypto-asset that purports to maintain a stable value by referring to the value of several fiat currencies that are legal tender, one or

¹ Proposal for a Regulation of the European Parliament and of the Council on Markets in Crypto-assets, and amending Directive (EU) 2019/1937. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020PC0593>



several commodities or one or several crypto-assets, or a combination of such asset.

- **Electronic money token or e-money token:** meaning a type of crypto-asset the main purpose of which is to be used as a means of exchange and that purports to maintain a stable value by referring to the value of a fiat currency that is legal tender.

On the contrary, MiCA refuses to use the well-known term of “security tokens” to refer to those crypto-assets qualifying as a financial instrument, electronic money, deposits, structured deposits or securitization, which are expressly excluded from its scope of application.

In any case, it is quite common that the crypto-assets may have features from several of the aforementioned types. Therefore, these hybrid tokens may not appropriately fit in a single category and thus their legal framework may not be so clear.

Namely, this risk may be sharper in the case of those asset-referenced tokens or e-money tokens that, depending on their configuration, may be close to a derivative, which may entail that their nature as a financial instrument may prevail over the MiCA regulation. In this case, their legal treatment may be contingent on how MiFID II has been implemented at a national level in the relevant Member State.

II. DATA PROTECTION ISSUES AND MICA PROPOSAL

Crypto-assets' implications in personal data protection matters are diverse due to their main characteristics.

First, given their token status and taking into account that the tokenization process involves, generally said, the masking or replacement of data, any tokenized information may appear to be excluded from the scope of application of the GDPR² and, therefore, excluded from compliance with all its principles and guarantees.

However, this scenario is quite far away from what is really happening, since the data masking applied during the tokenization process, which is carried out through a Hash algorithm and which, as a consequence, entails the replacement of the hashing information with an alphanumeric string, depends, on one side, on the kind of algorithm that has been used (not every algorithm provides the same outcome) and, on the other side, on whether it is recoverable, given that, at least, the owner of the information has the public key with which the obfuscated information can be recovered. Thus, there is no anonymization through which the possibilities of identifying

² Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data <https://eur-lex.europa.eu/eli/reg/2016/679/oj>

people related to these data vanish. In the light of GDPR, we are dealing with a pseudonymization³ process which grants to the obfuscated personal data the status of being attributable to an identifiable person.

Hence, regarding the definition of "personal data"⁴ provided by the GDPR, crypto-assets shall be processed and protected according with the principles and guarantees set forth in its wording.

Notwithstanding, the fact that the information linked with the crypto-assets and, therefore, with the involved personal data, goes through this pseudonymization process is, without a doubt, a significant security measure with a considerable impact when trying to minimize the possibilities of suffering a personal data security breach.

Deservedly, tokenization stands out as a quite useful tool when facing compliance with the obligations set out by the GDPR, given that it contributes to the strengthening of the deployed security measures, makes the relationships

with service providers which have access to personal data easier and facilitates the utilization of personal data where they are going to be used for an activity such as the exploitation of big data assets.

Furthermore, tokens remain registered or supported on a database equipped with Distributed Ledger Technology (DLT), such as it would be Blockchain. To put it another way, a decentralized database of which there are identical copies distributed among several participants (node network).

On it, data related to the different tokenized transactions are processed and stored in blocks, which are connected to each other in chronological order creating a chain whose integrity and safety remain assured by means of cryptography, building a kind of digital registration book. The way each record is included or updated relies on the governance system with which the network works, and this is a decision agreed by the participants of the network.

Accordingly, all the practical application issues of the GDPR are transferred to the aforesaid DLT, that is to say:

- o **Difficulties to determine the principal positions in data protection terms** (data controller, co-controllers, data processor and data subject) and the associated obligations with said roles. That is because, in these networks or systems, the determination of said positions relies on factors such as the kind of network⁵ or governance system and, in some scenarios, it could be impossible to ascertain.
- o **Obstacles when dealing with the effective exercise of some data protection rights**, such as the right of rectification or erasure, and the data included in the network given the immutability of the transactions registered since they remain linked and rely on each other in a way that is not possible to modify them without affecting the coming transactions.

³ Art. 4.5) "the processing of personal data in such a manner that the personal data can no longer be attributed to a specific data subject without the use of additional information, provided that such additional information is kept separately and is subject to technical and organisational measures to ensure that the personal data are not attributed to an identified or identifiable natural person."

⁴ Art. 4.1) "any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person."

⁵ Public, private, permissioned or hybrid network, among said categories.



Different tokenized transactions are processed and stored in blocks, which are connected to each other in chronological order

Some of these questions can be solved by choosing the kind of network intended to work with and an adequate governance system in line with the circumstances, or through the implementation of the privacy by design and privacy by default principles. There are others, such as the exercise of rights of rectification or erasure,

for which, regarding the regulation, there is not a clear solution. Nonetheless, it seems that the modification of the technology itself will not be the key of any solution and other kind of alternatives must be considered. Alternatives that are able to guarantee, even in another sense, data subject's rights. In the end, it would not be the only scenario where the exercise of some GDPR data protection rights cannot be exercised due to the specific circumstances (think about video surveillance). In any event, these solutions must be assessed on a case-by-case basis.

Finally, when the token category we are managing consists in the digital representation of a value or a right "which may be transferred and stored electronically, using distributed ledger technology or similar technology"⁶, we talk about crypto-assets.

⁶ Article 3.2) of the Proposal for a Regulation of the European Parliament and of the Council on Markets in Crypto-assets, and amending Directive (EU) 2019/1937.

At this stage, the asset status requires an adequate regulation and control of the market in which they flow and, once again, the implication of the DLT technology entails difficulties in order to comply with the regulatory frameworks addressed to this kind of assets, closely related with the technical complexity and lack of transparency of the registered transactions.

This is the reason why the MiCA Proposal, aiming to provide both legal certainty and transparency in the crypto-assets market, introduces certain rules and transparency obligations which contain personal data processing implications and are addressed to the players involved.

Firstly, in accordance with the regulation of other financial products, it is required to obtain an authorization in order to operate as a crypto-asset service provider, which translates into the obligation addressed to the European Securities and Markets Authority (ESMA) to establish a register of all of said providers that shall be publicly available on its website and shall be updated on a regular basis (art. 57).

It is required to obtain an authorization in order to operate as a crypto-asset service provider

Moreover, within the framework of the trading functions of crypto-assets, and in line with the efforts of the authorities to regulate these markets and prevent the characteristics of this technology from resulting in the proliferation of fraudulent operations, the possibility of admitting the negotiation platforms of those crypto-assets that incorporate an anonymization function which prevents the identification of the crypto asset's owner and their transaction record is limited.

At this point, we must remember that, while the anonymization process is irreversible, the tokenization process is not or may not be.



Regarding the need to outsource the provision of certain services, article 66 of the MiCA proposal expressly indicates that the crypto-assets service providers have to take in to account the operational risks arising from their intervention in the processing of the data involved —risks that they would be able to determine by carrying out the corresponding analysis. They must also consider the need to resort to providers that offer enough guarantees concerning their obligations relating to data protection matters, in accordance with the principle of accountability set out by the GDPR and the specific obligation established in its article 28 by virtue of which these relationships shall be formalized in order to give to both provider and data processor the necessary instructions about the processing.

Likewise, the MiCA Proposal establishes the general lines of a sanctioning regime that the competent authorities in each Member State will be in charge of enforcing and that comes reinforced with the obligation to make public



the decisions through which administrative sanctions or other measures are imposed.

The content of this publication will include not only information about the kind and nature of the infringement but, since it is expressly set forth, the inclusion of the identity of the infringing natural or legal person, unless the competent authority deems this data dissemination unreasonable.

This proportionality or appropriateness of the publication must be assessed by the competent authority according to the circumstances of each case. However, this does not mean a certain margin of discretion since, in such situations, if the competent authority considers the measure to be disproportionate or deems that it affects an ongoing investigation, the options are (i) to postpone the publication, (ii) to publish it in an anonymized form or (iii) not to impose the sanction if the previous options are not appropriate.

As a guarantee, a limit is set on the validity of the publication, which will remain available on

the website for 5 years, except for the personal data whose cancellation period must comply with the principles of the applicable regulation.

On the contrary, fines imposed by the European Banking Authority (EBA) will be publicized but will not include personal data of the infringer.

Finally, the content of article 88 is striking and, under the heading of "data protection", it merely recalls that the competent authorities, among which there are EBA and ESMA, shall exercise their functions and carry out all data processing in accordance with the GDPR. However, no reference is made to the other players involved in the issuance of crypto-assets or to more specific issues such as the practical application of the GDPR principles.

Needless to say, the statement in the aforementioned article 88 does not mean that the rest of the stakeholders are not bound to such regulation. The GDPR will apply as long as their activity falls within the scope of the same.

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