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## **Discussion paper on The Distributed Ledger Technology Applied to Securities Markets**

Dear Sirs,

IHS Markit is pleased to submit the following comments to the European Securities and Markets Authority ("**ESMA**") in response to its Discussion Paper on *The Distributed Ledger Technology Applied to Securities Markets*.

IHS Markit<sup>1</sup> (Nasdaq: INFO) is a world leader in critical information, analytics and solutions for the major industries and markets that drive economies worldwide. The company delivers next-generation information, analytics and solutions to customers in business, finance and government, improving their operational efficiency and providing deep insights that lead to well-informed, confident decisions. IHS Markit has more than 50,000 key business and government customers, including 80 percent of the Fortune Global 500 and the world's leading financial institutions. Headquartered in London, IHS Markit is committed to sustainable, profitable growth.

### **Comments**

DLT has captured the imagination of financial markets and has recently garnered a lot of interest from policymakers and regulators. The successful implementation of DLT in the Bitcoin protocol has led financial market participants to consider potential use cases in the securities and derivatives markets. A number of firms are investing significant resources in potential solutions to existing inefficiencies in financial markets. Firms are participating in Proofs of Concept and successfully experimenting with applications of DLT in sandbox environments. These firms are now looking for regulatory clarity so that they can implement these solutions commercially, particularly in the post-trade space.

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<sup>1</sup> See [www.ihsmarkit.com](http://www.ihsmarkit.com) for more details

IHS Markit believes that this Discussion Paper (DP) is timely given the state of development of DLT and will help launch a dialogue between the industry and regulators to provide much needed clarity. IHS Markit is itself investing significant resources in developing potential solutions.<sup>2</sup> Our comments on the discussion paper are based on our experience in developing these solutions and engaging with potential users of these solutions. They can be summarized as below:

- i) IHS Markit believes that DLT will transform global securities markets. Back office processes such as confirmation/affirmation and reporting could benefit from the efficiencies of DLT in the next 2-3 years. Application in capital market operations such as issuance and trading is likely to take longer since these require fundamental change in securities markets and legal frameworks.
- ii) Widespread adoption of DLT in capital markets is predicated on a clear definition of digital assets. Regulators should create a legal framework for digital assets that will help market participants create DLT networks.
- iii) The successful application of DLT in capital markets will require cross-border coordination between industry participants and regulators. DLT networks are likely to be supra-national and their success would depend on the extent to which legal frameworks are harmonised across jurisdictions.
- iv) IHS Markit firmly believes in the potential of DLT and has invested significant resources in developing solutions around Smart Contracts, Entity Data and Reference Data.

## Questions

**Q 1: Do you agree with the list of possible benefits of the DLT for securities markets? Please explain, e.g., are these benefits unique to the DLT, are some more important than others, are some irrelevant?**

We broadly agree with the list of benefits that are outlined by ESMA in the DP. However, most of these benefits are predicated on a working legal definition of digital assets. From a business perspective, we consider digital assets to be those items whose value and scarcity is held in a natively digital format, i.e. not warehoused or maintained by a single trusted party in any physical format. For example, it has been argued that the element of counterparty risk could be substantially lessened or even eliminated should DLT be used in post-trade settlement of securities transactions which could potentially remove the need for CCPs. However, without a standard accepted definition, it remains ambiguous how digital assets would embody counterparty obligations, facilitate individual transfers of title, and constitute ownership in the court of law. Furthermore, many of the blockchain proofs-of-concept will be unable to scale to production-grade systems without a definition that clarifies these uncertainties.

We believe that there are three areas ESMA has identified where DLT could have the most immediate impact on securities markets:

- i) **Costs** – Although the implementation of DLT on an aggregate level may be costly and there will be cases where reliance on existing processes may be more efficient for the industry, we agree that DLT in securities markets will

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<sup>2</sup> For a list of IHS Markit's involvement in DLT please see response to Q7.

provide the impetus to “streamline middle and back office processes with the automation of some tasks which are currently performed manually”<sup>3</sup>; this should result in cost savings in the long run. Industry initiatives around smart contracts are already being pursued that would eliminate costs and improve efficiencies in processes that are currently time consuming and expensive. With the help of smart contracts on a distributed ledger, participants would no longer require the current levels of support (via headcount and third party software) for reconciliations.

- ii) **Regulatory Reporting** – The reporting infrastructure currently in place due to the myriad of reporting obligations on securities market participants is a huge burden on the industry and consumes substantial resources. DLT would create a shared ledger which would create the efficiencies enumerated in the DP.<sup>4</sup> By creating an environment where multiple parties, including regulators, can participate in and view a network of shared books and records, participants no longer require legacy infrastructure to maintain its reporting requirements.
- iii) **Security** – Banks, clearinghouses, and banking infrastructure providers are attractive sources of valuable data for hostile cyber attackers. By encrypting and replicating data across multiple systems, DLT eliminates the single “pot of gold”. In other words, it removes the vulnerability associated with golden records of data in specific market infrastructures. Redundancy eliminates incentives to attack a single server for its data. This should also reduce the systemic risk around such infrastructure.

**Q 2: Do you see any other potential benefits of the DLT for securities markets? If yes, please explain.**

We believe that DLT could facilitate corporate finance and change ways in which firms raise capital in markets by creating their own peer-to-peer networks.<sup>5</sup> If market participants are incentivised to secure a DLT network that represents a bond or a security, the industry would mutualize the costs of warehousing, authenticating, and transfer of the securities.

**Q 3: How would the benefits of the technology be affected, in the case where the DLT is not applied across the entire lifecycle of securities (i.e., issuance, trading, clearing and settlement, safekeeping of assets and record of ownership) but rather to some activities only?**

We believe that DLT provides a technology foundation that allows for frictionless interaction between different operations in the entire lifecycle. However, this frictionless interaction is not the same as DLT providing an end to end solution to the securities

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<sup>3</sup> Para. 27

<sup>4</sup> Para. 19

<sup>5</sup> Peer-to-peer networks are systems that replace the trusted authority in centralized networks with a protocol that all peers follow synchronously

markets operations listed above but offers a complementary technology platform for many present day technologies that protect and secure the global securities markets.

**Q 4: Which activities (e.g., post-trading, other activities), market segments and types of assets in the securities markets are likely to be impacted the most by the DLT in your opinion? How is the DLT likely to modify the way securities markets operate? Please explain.**

DLT can be best understood as a self-service digital asset registry, where peers agree to use a protocol that authenticates, secures, and transfers items of value (securities) in the network. DLT provides a compelling alternative that may be less costly than securities depositories currently in use. This would be achieved by participants mutualising the cost of operating the DLT network.

**Q 5: According to which timeframe, is the DLT likely to be applied to securities markets in your view? Please distinguish by type of activities, market segments and assets if relevant.**

IHS Markit believes that post trade processes such as settlement and reporting will be first to benefit from DLT and back office processes could benefit from DLT in the next 2-3 years. Adoption of DLT in Capital market operations such as issuance and trading is likely to take longer since there would need to be more fundamental change in securities markets to ensure adoption of DLT is successful in this market segment.

**Q 6: How might your organisation benefit from the introduction of the DLT?**

IHS Markit's offers services in the post trade processing space such as confirmation/affirmation and reporting. This is an area identified as one where significant benefits can accrue from the use of DLT. Regulators and policymakers seem to concur with the potential benefits of DLT in this space.

DLT is an opportunity for our firm to leverage the intellectual property we have in market data and OTC contract operations. We seek to accrue the benefits provided by a peer-to-peer network that eliminates the costs associated with data storage and "golden copy"<sup>6</sup> providers. In the long run, DLT is likely to lower the barriers to entry for those firms seeking access to capital markets and we anticipate that buy-side investment firms' participants will accrue considerable influence in market operations as DLT is deployed at scale. As more participants enter capital markets, our firm will thrive on new service opportunities.

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<sup>6</sup> "Golden copy" is defined as the official, master version of a record. In this instance, we refer to the legally verifiable version of a transaction.

**Q 7: If you are working on a concrete application of the DLT to securities markets please describe it (i.e., which activities, which market segments, which type of assets and for which expected benefits) and explain where you stand in terms of practical achievements in relation to your objectives.**

IHS Markit has been a thought leader in the DLT space and has actively engaged with the industry and policymakers alike.<sup>7</sup> We are invested in the future of DLT and are working at a number of different applications of DLT where we believe significant benefits will accrue. These applications, in the order of priority for IHS Markit, are explained in more detail below:

- i) **Smart Contracts:** This initiative of IHS Markit builds contract programs and protocols that autonomously maintain agreements and post-trade events; these protocols change the nature of those agreements throughout the contract lifecycle. Our application is currently focused on OTC Derivatives in Credit, Equity, FX, and Rates with the potential to expand into other products.
- ii) **Entity data:** This initiative addresses the need for DLT in capital markets to maintain compliance for market participants. IHS Markit is exploring how to integrate KYC and identity management into DLT networks.
- iii) **Reference data:** This initiative addresses the need consistent standards for the securities that are exchanged between parties. We are exploring how to integrate industry-accepted identifiers and contract standards into DLT networks.

**Q 8: Do you agree with the analysis of the potential challenges? Please explain, e.g., are some more important than others, are some irrelevant in your view.**

Most of the concerns and challenges, as enumerated by ESMA, are related to and are a direct inference from the perceived shortcomings of the Bitcoin protocol. For instance, ESMA has rightly raised concerns about the privacy and scalability of the blockchain technology. However, these concerns which first appeared during the implementation of the bitcoin protocol are frequently misappropriated when discussing DLT for securities markets. We agree that each of the concerns raised by ESMA (in section 4) would need to be accounted for if DLT is applied in global securities markets

We believe that regulatory and legal issues are of the utmost concern. How regulators, banks, and governments frame laws, and whether those laws are made cooperatively

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<sup>7</sup> IHS Markit has published an Op-ed on the TABB Forum discussing Blockchain technology: <http://tabbforum.com/opinions/blockchain-disruption-or-distraction>

IHS Markit has also participated in a number of industry conferences. Please see a list below:

1. Consensus 2016: <http://www.coindesk.com/events/consensus-2016/>
2. GMI Blockchain in Capital Markets: <http://www.gminsight.com/blockchain-conference/>
3. SRP Structured Products & Derivatives: <http://www.structuredretailproducts.com/americas>
4. XBRL Smart Contracts, Blockchain, and Data Standards: <https://xbrl.us/events/blockchain-20160404/>

across jurisdictions, will determine how DLT can be implemented in securities markets. ESMA has expressed its opinion that “the capacity of the DLT to fit into the existing regulatory framework may limit its deployment”.<sup>8</sup> While this is necessarily true in the short run, the regulatory standards should evolve in a way that allows capital markets to take maximum advantage of breakthrough technologies such as DLT. As we have stated in our response to Question 5, adoption of DLT in securities markets is still a few years away. The regulators should take this opportunity to co-ordinate globally and enact legislation/promote standards that maximise the potential benefits of DLT.

**Q 9: Do you see any other potential challenges? If yes, please explain.**

The upfront cost of implementing a DLT network is likely to be a potential challenge facing the industry. The industry is likely to weigh the costs of implementing a redundant DLT protocol across multiple nodes and it might conclude that reliance on existing third party service providers (for regulatory reporting, record keeping, settlement etc) is less costly. This might hinder implementation and investment in DLT solutions. To overcome this challenge the industry must focus on gains accrued from reducing downstream costs<sup>9</sup> in the long run even if upfront cost of initial implementation of DLT is high.

**Q 10: Which solutions do you envisage for these challenges and where do the current initiatives stand in terms of practical achievements to overcome them?**

IHS Markit believes that wholesale adoption of DLT will materialise only if the industry is able to realise tangible cost benefits in the long run. Therefore, the industry must define explicit costs of implementing a DLT network and consider how that might reduce downstream implicit costs in a trade lifecycle

**Q 11: Do you agree with the analysis of the key risks? Please explain, e.g., are some risks more important than others, are some irrelevant in your view.**

The risks that ESMA has set forth in the DP must be addressed not only for the implementation of DLT but for any technology proposal. Most technologies used in financial markets today pose cyber risk, operational risk and in some instances, competition risk. We recognise that DLT would face those risks as well and policymakers should calibrate the regulatory environment to address those risks.

We believe that a significant risk is that a future DLT network might not be interoperable with existing networks or co-existing DLT networks might not be interoperable with each other. Interoperability between DLT networks should be a pre-requisite for the use of this technology in securities markets.

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<sup>8</sup> Para. 42

<sup>9</sup> Such as headcount, third party service providers, software and security maintenance

**Q 12: Do you see any other potential risks? Please explain.**

ESMA has already considered how “the deployment of the DLT could raise fair competition issues”.<sup>10</sup> We believe that there is an additional dimension to the competition concerns raised by ESMA.

As stated in our comments to Q1, DLT adoption should minimize costs and reduce barriers to entry for entities seeking access to capital markets. However, due consideration should also be given to the possibility that the technology may be used to bolster incumbent market share by the use of “private blockchains”. While we support the tenets of such private blockchains, these protocols should not be deployed in a manner that makes it prohibitively expensive for smaller market participants to access

**Q 18: Do you think that the DLT will be used for safekeeping and record-keeping purposes? Please explain, with concrete examples where appropriate.**

We believe that DLT can provide auditability and authentication of records of assets and contracts. The blockchains, which would underpin the use of this technology, would not be able to be unilaterally amended by any one party and in effect become the golden record of the trade. This would in turn facilitate safekeeping and record-keeping of assets.

**Q 19: If the DLT is used for the safekeeping and record-keeping of ownership, how could compliance with the regulatory requirements be ensured?**

Compliance with regulatory requirements could be most easily achieved if the regulators themselves were to become a part of the network. By participating in the creation of these networks and their protocols, regulators can ensure that compliance standards are maintained in real time.

**Q 20: Do you think that the DLT will be used for regulatory reporting purposes? Please explain, with concrete examples where appropriate.**

Yes.

Existing reporting obligations requires parties to export potentially disparate views of a transaction and deliver this data to a regulator through trade repositories. The regulator then amasses the different views of the same transaction<sup>11</sup>, reconciles them, and responds back to the trade repository with questions or concerns. If regulators join DLT networks, they would be able to access the data they require based on established protocol permissions which they have created in collaboration with the industry. This

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<sup>10</sup> Para. 53

<sup>11</sup> For example, in the dual sided reporting regime under EMIR regulators receive two separate reports of the same transaction.

would remove the need for the transmission of trade reports and the inefficiencies resulting from this process.

**Q 21: If the DLT is used for regulatory reporting purposes, how could compliance with the applicable regulatory requirements be ensured?**

Compliance with regulatory requirements can be best ensured by embedding these requirements at the protocol level of the DLT network, which would be a set of rules governing the functioning of the DLT. In other words, market participants that decide to use DLT network would be by definition in compliance by running the protocol associated with the network.

**Q 23: Do you see potential regulatory impediments to the deployment of the DLT in securities markets?**

Without legal precedent and a consistent definition of digital assets, development of DLT solutions will likely be impeded. If a digital asset is considered currency in one jurisdiction and commodity<sup>12</sup> in another, the industry will not be able to achieve any efficiency via DLT.

We also believe that it is imperative that regulators coordinate globally to ensure that DLT networks, which would be supra-national in scope, are implemented consistently across jurisdictions.

**Q 24: Should regulators react to the deployment of the DLT in securities markets and if yes how? If you think they should not do so please justify your answer.**

Yes. We strongly support coordination between regulators across jurisdictions given that one of DLT's many goals are to eliminate the costs associated with cross-border payments and securities transfers. A 'do no harm' approach by the regulators should create a healthy environment for experimentation across markets to develop scalable and secure DLT solutions.

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We hope that our above comments are helpful. We would be more than happy to elaborate or further discuss any of the points addressed above in more detail. If you have any questions, please do not hesitate to contact Harsh Agarwal at [harsh.agarwal@ihsmarkit.com](mailto:harsh.agarwal@ihsmarkit.com).

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<sup>12</sup> CFTC designated Bitcoin and other virtual currencies as commodities in Sep 2015. See press release: <http://www.cftc.gov/PressRoom/PressReleases/pr7231-15>