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| 2 June 2016 | ESMA/2016/773 RF |

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| Reply form for the  Discussion Paper on the Distributed Ledger Technology Applied to Securities Markets |
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| Date: 2 June 2016  ESMA/2016/773 RF |

Responding to this paper

The European Securities and Markets Authority (ESMA) invites responses to the specific questions listed in the ESMA Discussion Paper on the Distributed Ledger Technology (DLT) Applied to Securities Markets, published on the ESMA website.

*Instructions*

Please note that, in order to facilitate the analysis of the large number of responses expected, you are requested to use this file to send your response to ESMA so as to allow us to process it properly. Therefore, ESMA will only be able to consider responses which follow the instructions described below:

* use this form and send your responses in Word format (pdf documents will not be considered except for annexes);
* do not remove the tags of type <ESMA\_ QUESTION\_DLT\_1> - i.e. the response to one question has to be framed by the 2 tags corresponding to the question; and
* if you do not have a response to a question, do not delete it and leave the text “TYPE YOUR TEXT HERE” between the tags.

Responses are most helpful:

* if they respond to the question stated;
* contain a clear rationale, including on any related costs and benefits; and
* describe any alternatives that ESMA should consider

**Naming protocol**

In order to facilitate the handling of stakeholders responses please save your document using the following format:

ESMA\_DLT\_NAMEOFCOMPANY\_NAMEOFDOCUMENT.

E.g. if the respondent were XXXX, the name of the reply form would be:

ESMA\_DLT\_XXXX\_REPLYFORM or

ESMA\_DLT\_XXXX\_ANNEX1

***Deadline***

Responses must reach us by **2 September 2016.**

All contributions should be submitted online at [www.esma.europa.eu](http://www.esma.europa.eu) under the heading ‘Your input/Consultations’.

***Publication of responses***

All contributions received will be published following the end of the consultation period, unless otherwise requested. **Please clearly indicate by ticking the appropriate checkbox in the website submission form if you do not wish your contribution to be publicly disclosed. A standard confidentiality statement in an email message will not be treated as a request for non-disclosure.** Note also that a confidential response may be requested from us in accordance with ESMA’s rules on access to documents. We may consult you if we receive such a request. Any decision we make is reviewable by ESMA’s Board of Appeal and the European Ombudsman.

***Data protection***

Information on data protection can be found at [www.esma.europa.eu](http://www.esma.europa.eu) under the headings ‘Legal notice’ and ‘Data protection’.

# Introduction

Please make your introductory comments below, if any:

<ESMA\_COMMENT\_DLT\_1>

**ISDA, on behalf of its members, welcomes the opportunity to respond to ESMA’s discussion paper (DP) on the application of Distributed Ledger Technology (DLT) to securities markets. We note that the DP picks up on some very current areas of focus and consideration but would suggest that the request for specific detail in some areas may be premature as market participants are still at an early stage of exploring the opportunities to deploy this technology. For example, some of the benefits, challenges and risks identified within the DP relate to the technology being deployed in the form used for Bitcoin. Current expectation is that many applications for financial services will deploy a permission based ledger which will inherently address some of these concerns.**

**As a result of this analysis being at an early stage the responses provided herein are at a relatively high level although we have attempted to provide detail where we think it would be helpful. As the thinking around these issues is in flux, we believe it is important to focus on some key objectives rather than too much detail at this time.**

**We recognise that DLT is currently the focus of many participants in many areas of the global financial markets. Recent changes to market structure, operation and practices, largely as a result of economic conditions and global regulation have caused market participants to review their operating models and engagement strategies. Many technologies which underpin distributed ledgers are not new but high bandwidth networks and cheap processing power have made them more readily available causing market participants to start exploring how they can be utilised to address the challenges they face. While there is a high level of expectation around the power of these technologies to deliver significant benefit and efficiency, the specifics around how they can be developed and deployed to solve industry challenges is still at a very early stage of analysis. However, we would suggest that if the industry only uses the technology to replace the current infrastructure without embracing its potential to do things differently through standardisation and streamlining processes this would be a poor outcome.**

**As reflected throughout our response the efficacy of any infrastructure or business process is about good design. Understanding the objectives, business and regulatory, and deploying a well designed DLT will help to address many of the concerns associated with this or any other technology.**

**We believe that the following messages are particularly important as the industry continues to explore the application of DLT:**

1. **Regulate the application/function of DLT, rather than the technology itself:**

**The uses for DLT are numerous and diverse and the adoption of a "one size fits all" regulatory framework for DLT is unlikely to be effective or proportionate. The regulatory framework needs to be sufficiently adaptable to operate across the multiple applications of DLT. Therefore, the technology itself should not be regulated. Related to this, it is important that un-regulated functions do not become regulated functions solely by virtue of DLT. While it may be the case that DLT could be used to perform an unregulated function in an inappropriate manner, any regulatory action in such cases should be determined on a case-by-case basis, and not on the fact alone that it is DLT that is being used to perform the relevant function.**

1. **Encourage innovation:**

**All industries need to evolve, financial markets are no exception. Evolution occurs through innovation, be it product, process or practice and it is important that regulators do not stifle this innovation and create missed opportunities. Innovation takes time to develop appropriate solutions which can be implemented and adopted, regulators should observe industry proof of concepts, monitor and remain flexible to market developments, particularly around DLT impact to cash, FX markets and central/commercial bank settlements, to see how they evolve and to ensure outcomes are aligned with regulatory objectives. It is important that any regulatory approach on DLT does not implicitly limit or constrain the industries ability to test and develop DLT. Furthermore, if a situation arises where the use of DLT poses challenges within a certain regulation, we would advocate that policymakers take a pragmatic approach to such situations. The possibility of DLT not fitting within certain regulations should not be viewed negatively, given that the current regulatory framework has been constructed without taking account of something like DLT. In this regard we note Verena Ross’ comments at the London Business School/ Bank of England Conference on ‘How imminent is the real Fintech Revolution’ where Ms. Ross noted that ESMA’s framework as a regulator needs to “remain flexible and adaptive to market events”[[1]](#footnote-2).**

1. **Collaboration:**

**Regulators and industry should collaborate on the evolution of the financial markets. Regulators should be flexible on existing regulations to avoid constraining the development of a safe and efficient financial markets infrastructure. Today’s financial markets ecosystem has evolved over time often as a result of market conditions and business opportunities but also as a result of regulatory requirements. The current state is a reflection of various influences limited by available technology and solutions. There could be a real opportunity to do things differently as a result of DLT and other technologies and it would be regrettable if the opportunity for a better future state is unnecessarily constrained by legacy. For example, existing practice relies on sending information between market participants and throughout the system. DLT provides an opportunity to invite relevant parties into an environment where they can extract or observe relevant information based on certain permissions either by acting as a node on the ledgers or through a relevant intermediary. By way of example, one area where this may provide significant cross industry benefit and efficiencies is that of regulatory reporting and we would encourage regulators to be receptive to this concept.**

**However, industry must also accept that certain rules exist to meet regulatory objectives and cannot be amended easily if at all and therefore some restrictions on deployment of DLT may be inevitable. This also applies to requirements to comply with PFMIs where appropriate and necessary.**

1. **Promote harmonised global standards and encourage interoperability:**

**Many features of financial markets are directly or indirectly global in nature. To avoid unnecessarily constraining deployment of DLT it is important that any regulatory framework is based on harmonised global standards. Many of the efficiency challenges facing market participants today result from global inconsistency and it would be undesirable if opportunities to address these challenges were themselves constrained by global inconsistency. Global regulators should collaborate with each other and industry participants to make sure this does not happen and we would suggest that IOSCO is the perfect venue for this collaboration. Furthermore, industry participants are keen to encourage interoperability such that new infrastructures, processes and practices do not constrain one another, it is important to encourage competition but this should not be at the expense of an efficiently operating market. We would encourage regulators to support this objective.**

<ESMA\_COMMENT\_DLT\_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?

<ESMA\_QUESTION\_DLT\_1>

In general, ISDA believes that the list of possible benefits of utilising DLT within securities markets as set out in the DP is fairly comprehensive and representative of the benefits currently anticipated by ISDA’s members.

While exploration of potential use cases for the technology is at an early stage, there is a sense that the most immediate opportunities to deliver industry benefit are likely to be in the post trade space. In particular DLT is considered to have the potential to replace the current processing infrastructure with a model that reduces reconciliation, increases speed of settlement and access to information and establishes efficiencies around record of ownership of assets, reporting and collateral management.

However, it should be noted that while there may appear to be obvious benefits from some applications it is imperative that full consideration is given to possible unintended consequences.

Many of the potential use cases identified to date do not exist in isolation and therefore more work needs to be done on the benefits and challenges in light of knock on effects within the financial markets ecosystem even if, as expected, production uses of the technology may be delivered incrementally. Therefore, as mentioned in our introduction it is important that only the application/function of DLT and not the technology itself is subject to regulation. Financial markets participants need to have the opportunity to explore changes to the existing ecosystem redesigning and replacing aspects of it as and when appropriate.

More detailed comments on some of the benefits considered by ESMA are set out below. It is worth reiterating that these comments represent current thinking and, as noted above, the fast pace at which DLT is evolving means that they are subject to change.

*Clearing & Settlement*

We agree that DLT could bring the stated benefits in the clearing and settlement space. However, the full extent of such benefits will depend on a number of factors, including:

* What is meant by clearing in the context of combining clearing and settlement of transactions into a single step? If it is a third party (CCP or clearing bank) performing the function of the trade obligation, then that specific function still needs to be performed separate from and preceding settlement. It can be, and often is, automated, so the benefits of DLT in that respect are somewhat muted,
* Settlement timeframes: It may be preferable to allow for flexible settlement cycles instead of mandating/imposing T1 or T0 settlement. T0 is already possible today in most settlement systems from a technical perspective, but is not widespread given dependencies on other factors such as investor funding timelines, treasury funding and FX constraints, and other manual processes. This was evidenced when Europe moved from T+3 to T+2 settlement in 2015. In this respect, it is also important to analyse the impacts of real-time settlement on other areas, such as the ability of market makers to provide two way liquidity, the availability of securities lending arrangements to cover short sales, the impacts on visibility of individual firm’s positions and trading activity by others, etc., and weight that up against the collateral and liquidity benefits,
* It's worth noting that whilst 'cash on ledger' is out of scope for this paper, some of the potential applications of DLT may require that to achieve the benefits (ie full DVP on chain).

Having said this, it is worth noting where DLT could bring clear benefits for clearing and settlement. For instance, DLT could:

* Offer an alternative approach to the current clearing model and the functions CCPs perform today and remove the need for reconciliations, reporting and cash flow calculations,
* Improve issues around clearing certainty and the reduction of settlement risk outside of clearing. As stated, an element of counterparty risk persists but with the robust data analysis capabilities provided by DLT, it enriches the information available to Credit Executives and enables near real-time decisions to be made on counterparty creditworthiness or appetite to take on a trade, especially in stressed markets or illiquid products,
* Provide the same transparency for both cleared and non-cleared transactions, which may be a factor in shaping future regulations in the light of potential systemic risks posed from having large CCPs,
* Combine trade confirmation/affirmation/allocation and the generation of settlement instructions into a single step, which would avoid duplicative work and mismatches that occur across these separate processes today.

*Record of Ownership*

DLT could promote the adoption of global legal entity identifiers, however in other cases, DLT-specific identifiers would need to be carefully considered given the standard identifiers already in place i.e. ISINs, SEDOLs etc for securities. An entirely new set of digital 'token' identifiers should be avoided or easily mapped to existing standards where such existing standards are appropriate in the future-state. However, as noted elsewhere in our response it is important that the industry and regulators take the opportunity to review and redesign current market structure and operating practices and develop solutions that leverage the opportunities created by DLT. In which case, even if current ISIN-like identifiers are used, there may be a need to differentiate between the 'real world' version and the DLT version.

Regarding issuance of digital securities, there should be no discrepancy between rules for DLT-issued vs traditionally-issued securities.

It is worth highlighting the importance of the stated benefits around implementing a unique reference database, reducing ambiguity of contracts and reducing/optimising reconciliation efforts.

*Reporting*

For securities this is one of the biggest potential benefits for DLT since it could provide real-time transparency for all market participants including regulators. Direct access to data does not just provide a speed of access benefit, but even more significant is that it means reporting could be self-service from the regulators point of view. The result being that industry participant could be largely freed up from the operationally, and even technically, heavy task of producing regulatory reports and responding to new regulatory reporting requirements.

It would be useful to analyse which (new) reporting obligations under EU regulations could benefit from DLT technology, and work together with national and EU regulators to have this implemented in a consistent way. Doing this as one of the earlier use cases could solve significant industry issues and allow the industry to test DLT technology without impacting core cash and securities value transfer (clearing/ settlement) processing.

*Counterparty risk*

For securities/spot transactions DLT helps mitigate credit risk because near instantaneous DVP will ensure payment at (or near) the point of delivery. For forward contracts with longer lifecycles, the benefits around counterparty/ systemic risk relate less to the total reduction of counterparty risk, but more to an improvement of risk management techniques through some of the other benefits that the DLT can provide, i.e. improved collateral management and holistic real-time reporting. It is also worth noting however that attention should be paid to other factors which currently constrain shorter settlement cycles (see above) and which will not be solved by DLT. See arguments listed above.

Regarding settlement netting: immediate settlement can indeed constrain the ability to net transactions even for cash transactions. However, the question should be asked whether netting (for risk purposes) is still a valuable benefit in a T0 environment. From a practical perspective we disagree that netting is not possible on-chain and, in certain DLT contexts, it may not be necessary to net at all - please refer to the comments regarding netting in Q8.

*Collateral Management*

There are a number of possible outcomes regarding collateral management:

* Continued need for collateralisation, but with improvements to the process: By introducing a shared record of trading activity and reference data on-chain, as well as moving to a CCP-style single valuation (i.e. replicated, shared MTM on-chain; or via a market utility that could provide a valuation service that removes the counterparties' model risk), we could effectively eliminate collateral disputes on non-cleared trades, since counterparties will be in agreement about the inputs to the collateral requirement calculation, resulting in more effective use of collateral and lower costs spent on managing the collateral/margin process. The key in this model is consistent trade, reference and market data,
* Reduced need for collateral: For spot transactions, the need for collateral could diminish because exchange is near instantaneous. Note that for forward/derivatives contracts we don’t envisage a reduced need for margin,
* From a cleared perspective, CCPs will continue to provide the existing risk management function, however additional functions that a CCP performs (settlement, event management etc.) could move to a shared ledger (i.e. via smart contracts), resulting in a simplified CCP offering, and potentially a lower CCP charge model.

*Security and resilience*

Especially in large scale financial transactions and for investor protection/systemic risk reasons, it is essential to assign responsibility for key service functions, and ensure that the integrity of the overall system is well controlled, cannot be used for fraudulent transactions, and backed by institutions which are robust, well controlled and creditworthy (whether they are FMI's and/or commercial banks). This goes against the Bitcoin concept of an open network and is key in the conceptual design of private/permissioned networks.

<ESMA\_QUESTION\_DLT\_1>

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

<ESMA\_QUESTION\_DLT\_2>

In addition to the potential benefits of DLT for securities markets listed in the DP ISDA understands from its members that there are additional specific use cases that could provide further benefits to market participants. While it is premature to comment on how successful these use cases may be in delivering the perceived benefit we list some such cases below:

1. KYC,
2. Identity management,
3. CCP resolution,
4. Risk monitoring,
5. Smart contracts for transaction lifecycle management,
6. Increased compression,
7. Golden source repository for combined reporting and business use,
8. General improved operational efficiency leading to cost reduction and opportunities for business growth and increased liquidity,
9. Asset tokenisation,
10. Improved funding processes,
11. Standardisation.

<ESMA\_QUESTION\_DLT\_2>

##### 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?

<ESMA\_QUESTION\_DLT\_3>

It is difficult to estimate the full extent of the benefit of deploying DLT to parts of the lifecycle of securities. In some cases, benefits will likely still be realised if only a portion of the life cycle is put on a DLT, but clearly the biggest benefit would be delivered if DLT is delivered to the full end to end process, however, practically speaking this is unlikely to occur. The industry needs time to prove out specific use cases and as they become trusted and available for production the industry is unlikely to delay implementation where there are tangible benefits or where an implementation is part of a phased longer term plan. Such incremental delivery will very likely need to be considered on a case by case basis as securities lifecycles can often be split up into multiple distinct functions which, depending on product type and firm, may be supported within silos. In some cases it may be easier to deploy DLT use cases that affect a specific activity although work will need to be done to integrate with other parts of the entire process.

<ESMA\_QUESTION\_DLT\_3>

##### 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.

<ESMA\_QUESTION\_DLT\_4>

In our opinion the most likely initial use of DLT will be in post trade activities. Despite considerable change over recent years, largely as a result of global regulation, it remains the case that many aspects of the post trade environment are manual and cost/resource intensive. DLT provides an opportunity to address these challenges. Particular activities and areas of focus are considered to be clearing, settlement netting, reporting and collateral management while self-executing smart contracts are also receiving a lot of attention. DLT may also provide an opportunity to change current practices and behaviours such as allocations due to the inherent benefits of recording information on a shared ledger.

<ESMA\_QUESTION\_DLT\_4>

##### 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.

<ESMA\_QUESTION\_DLT\_5>

ISDA anticipates that DLT is likely to be applied to securities market over an extended period of time ranging potentially from anywhere between 2 to 10+ years depending on product and function. We anticipate that early production deliveries may occur in derivatives products and in functions such as payments, reporting and collateral management. It is highly likely that early production uses may be delivered within individual firms where some of the issues associated with security and identity are less problematic but where benefits of shared ledgers can be realised.

<ESMA\_QUESTION\_DLT\_5>

##### How might your organisation benefit from the introduction of the DLT?

<ESMA\_QUESTION\_DLT\_6>

ISDA members are at varying stages of determining how DLT may benefit them directly, however, it is anticipated that if DLT can deliver some of the anticipated industry wide benefits individual firms will benefit accordingly.

<ESMA\_QUESTION\_DLT\_6>

##### 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.

<ESMA\_QUESTION\_DLT\_7>

ISDA is supportive of initiatives that are exploring possible application of DLT in derivatives markets and is continuing to work with members to assess opportunities in this area.

<ESMA\_QUESTION\_DLT\_7>

##### 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.

<ESMA\_QUESTION\_DLT\_8>

At a high level ISDA agrees that many of the potential challenges to deployment of DLT in securities markets exist, however we would suggest that given the relatively early stage development of this technology it would be very easy to overstate some of these challenges. As industry participants continue to develop and test use cases it is highly likely that solutions to existing challenges as well as additional challenges will be identified. It is important to acknowledge that some of the challenges identified in the DP are the result of existing technology and practice yet some of this existing technology and practice could itself be subject to change either directly due to DLT or otherwise. For example, the DP notes that Delivery versus Payment (DVP) needs to occur simultaneously in central bank money yet ISDA members are aware that some central banks are looking at the possibility of developing digital fiat currencies. We would also note that not all DLT scenarios require simultaneous movement of cash and securities.

We would anticipate that as the industry continues to explore opportunities for deploying DLT it will discover solutions for many of the currently perceived challenges and obstacles. It may indeed be the case that not all obstacles can be overcome through the use of DLT but alternative technologies or solutions may be identified. A key point in this regard is that the industry and regulatory community should be open minded with respect to finding solutions to challenges facing the financial markets today. This is in line with our guiding principle set out in the introduction.

When considering the challenges set out by ESMA individually, we feel that there are a few that may be re-framed by ESMA:

*Need to settle in central bank money*

ESMA notes that in order to achieve full DVP for settlement, both the asset and the cash ‘legs’ of the transaction need to be processed simultaneously. However, in addition to our comments made above regarding the possible development of digital fiat currencies it’s not clear that DVP is a relevant requirement for all scenarios that may benefit from DLT – e.g. moving money between a custodian’s accounts.

*Recourse Mechanism*

While it is correct to say that the state of an existing transaction cannot be altered on a DLT immutable ledger, there is still means to ultimately modify or cancel transactions via new versions of an existing transaction. Thus, a perceived lack of a “recourse mechanism” is not such a challenge for DLT.

*Position netting*

There are at least two scenarios to consider here:

* *Netting can be achieved on a DLT* – “On-Chain” mechanisms – i.e. functionality embedded into the blockchain – are able to transpose the gross level information in to a net movement. Certainty of cash flows means that you could have a daily "lock down" process that nets all cash flows to be exchanged on a given value date to be locked and then it becomes a case of merely funding your accounts for the currency and amount required. Thus we disagree with ESMA’s assertion that the absence of netting could increase the need for collateral and capital for cleared financial derivatives. Furthermore, on-chain mechanisms such as this may also be possible across coupon and margin payments for both cash and securities, which are operationally distinct processes currently,
* *Netting is not necessary on a DLT* – Netting is currently desirable due to the cost and complexity of settlement processes. If those are simplified then settling gross volumes might not be the problem that it currently is. Similarly, netting to reduce counterparty exposure might not be an issue, if the method of settlement reduces counterparty exposure.

*Regulatory challenges*

Noting that DLT must adhere to current regulatory framework, but it should not be the case that any current or forthcoming regulatory obligations should constrain the development and deployment of DLT. In the long term, DLT may provide an alternative and preferable means of achieving regulatory objectives, and thus the extent to which DLT fits into the current regulatory framework should not necessarily be considered a challenge to the technology itself.

*Privacy issues*

ESMA raises some pertinent points regarding privacy. However, the problem is well understood by industry and many solutions are being tested in private POCs. Through the use of cryptographic techniques, access to data on the DLT could be granted or obfuscated depending on the user, while privacy could be further enhanced by only replicating transactions to interested parties. Before any industry implementation of DLT we would expect for this particular challenge to be solved for.

*Scalability*

Scalability issues, of the kind noted by ESMA, are becoming less of an issue in current DLT implementations. For example, solutions are being developed that introduce transaction sharding that will allow for parallel execution, or others that allow for extremely high transaction throughput and low latency.

*Margin/Short Selling*

ESMA’s view that margin finance or short selling transactions are no longer possible is not necessarily correct for at least two reasons:

* It depends on what the DLT is being used for and what the DLT implementation is.  For example, in the scenario where a DLT is being used to allow counterparties to agree on a single version of the trade (and therefore accrue the benefits of doing so such as reduced reconciliation, better reporting etc.), then a short-sell trade could be represented on a DLT. However, it may be that in the scenario where the DLT is being used for transfer of ownership/ownership tracking, then this could be an issue, and in order to not impact current market practice, creative solutions might be required such as performing additional steps that may or may not be practical, i.e. an on-DLT borrow has to be executed first, or a short-seller has access to a pool of on-DLT 'lendable' securities that they can 'lock' without transferring,
* Generally speaking, margin finance exists because of the need for margin. However, if spot transactions move to DLT then the underlying requirement for collateral/margin could diminish because exchange is near instantaneous. DLT would not restrict access to collateral, rather there would likely be less of a need for it (note though, the same may not be true for forward contracts or derivatives). Furthermore, for solutions that require access to inventory (for whatever reason - collateral, short covering, syndicated loans etc.) it is not clear that DLT would impede the ability to build, maintain or access inventory. In fact, it should be noted that DLT could also be used to build and maintain a central inventory.

Having said this, challenges worth re-emphasising are as follows:

*Governance framework*

ESMA correctly notes that developing and agreeing upon a governance framework, including liability issues, for a permissioned DLT network is a key challenge. Clearly identifying who is responsible should issues occur is a fundamental issue for DLT and should not be understated. Having said this, it is worth noting that financial services firms understand the issue at hand, and its significance, and solving for it is likely to be a pre-requisite for any practical deployment of DLT.

<ESMA\_QUESTION\_DLT\_8>

##### Do you see any other potential challenges? If yes, please explain.

<ESMA\_QUESTION\_DLT\_9>

ISDA anticipates that new challenges will appear and solutions will be developed over time. At this time ISDA and its members consider the following additional challenges to exist:

1. Navigating divergent regulatory regimes in the absence of regulatory cooperation. In this regard we believe that organisations such as IOSCO have a critical role to play,
2. Establishing sufficient consensus around specific use cases in order to develop, test and drive the technology into production. Currently there is limited resource and expertise in this field which if spread too thin across products and industry could create inertia,
3. Internal capacity and resource constraints.

<ESMA\_QUESTION\_DLT\_9>

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

<ESMA\_QUESTION\_DLT\_10>

It is difficult to provide specifics as the technology is at such an early stage of development. The challenges associated with use of DLT in financial markets need to be addressed through careful and appropriate design of any solution. As noted above ISDA would expect solutions to existing challenge to be identified and new challenges to emerge as the industry progresses with the development of use cases. We anticipate that this will be an iterative process whereby all challenges to successful deployment of DLT for a particular use case will be addressed before any adoption.

<ESMA\_QUESTION\_DLT\_10>

##### 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.

<ESMA\_QUESTION\_DLT\_11>

The potential risks described in the DP associated with deploying DLT to financial markets are generally valid although it should be noted that many of these risks exist in the current infrastructure and ecosystem. It is difficult to comment on which may be more significant than others but it is important to acknowledge that they exist. The critical point is that such risks are addressed through an appropriate design of any DLT based solution. It should also be noted that many of the risks described in the DP are likely to be less evident in a permission based distributed ledger which is expected to be the form in which this technology will be applied to financial markets. They may also depend on the specific function or product that the DLT is intended to support.

Having said this, ISDA would like to suggest where ESMA may re-frame certain risks arising from DLT, and also where the extent of the risks noted are worth re-emphasising, based on current thinking regarding DLT (as noted above, this is subject to change due to that pace, and early stage of, DLT development).

**Risks which may require re-framing by ESMA**:

*Cyber risks*

The stated risks regarding cyber could have significant effects upon DLT’s employment. For example, it’s possible that liability concerns arising from a cyber-attack could deter vendors from providing relevant services, regardless of resource capabilities, deterring vendors from taking on the risk. However, having said this, the following should be noted:

* *Cyber hacks* – the stated risk around gaining access to all information on the ledger will depend on how the ledger is implemented.  In a privacy-preserving model, where participants only have access to the trades that they are party to, a breach of one participant's node(s) does not automatically equate to access to all other participants data.  The impact is certainly limited and is arguably no different to a cyber-attack that takes place in a non-DLT environment,
* *Cracking encryption techniques* **–** the risk of 'cracking' (i.e. retrieve the original plaintext from the hash) the industry standard cryptographic encryption algorithms is extremely low although in time may be possible. However, this would be addressed universally by the cyber security industry (given the widespread use of these hash algorithms in every day computing) and is not a problem limited to DLT.

*Money Laundering*

We consider that most DLT implementation within financial services will be of a private-network, permission based nature. This would require participants to identify themselves explicitly and to pass not only network security checks, but also permissions/entitlement level checks to perform actions on the network.  All transactions should be signed by the transacting party and signatures validated by the counterparty.  Transacting would not be anonymous and could ultimately be subject to adequate AML controls.

*Market volatility*

Disagree that DLT may change market behaviour in the way described by ESMA, as DLT just offers a better way of executing on the same business. Regarding ESMA’s concern that DLT could lead to risk accumulating in less regulated segments of the markets, we feel that this is not strictly the case while current implementations are all focused on post-trade activities. However, if we see execution DLT solutions in the future then the market structure impact on executing on- and off-chain should be considered in more detail.

*Fair competition*

We disagree that the deployment of DLT could raise fair completion issues for at least two reasons: (i) potential benefits of DLT, such as simplified contracts and operating models, as well as lower transacting costs, could reduce barriers to entry; and (ii) regarding post-trade activities, economies of scale are achieved when all the participants have the same best practice standards and operating model.

*Governance regarding “lost keys”*

The stated risk is correct in the absence of a sufficiently robust governance framework, as ESMA notes. However, as per comments elsewhere in our response, industry understands the fundamental importance and need for robust governance standards prior to implementation of DLT frameworks. Such governance frameworks, therefore, may solve for the risk of lost or stolen keys.

**Risks which may require greater emphasis:**

*Operational risks*

To develop the argument posed by ESMA, process automation perhaps misses the point. A lot of our processes are already automated but the STP rates aren’t as high as we want them to be. We believe standardization is an important pre-requisite for DLT adoption which in turn drives successful automation (i.e. low cost, low error, low/zero touch solutions). Another way of putting it is that DLT is a consensus based system and standardization (not automation) determines consensus. Lack of consensus/standardization creates operational risk and also prevents successful automation.

*Migration to a new environment*

Agreed that this is a key problem for DLT, including market access during the migration and issues whereby, for example, the same contracts are being held on two different systems/processes.

<ESMA\_QUESTION\_DLT\_11>

##### Do you see any other potential risks? Please explain.

<ESMA\_QUESTION\_DLT\_12>

There is a risk that the increased speed of settlement facilitated by DLT could put considerable strain on market volatility in times of market stress. As noted above a well designed DLT solution should give due consideration to all eventualities and allow for such events to be controlled by appropriate actions, including by appropriate authorities.

<ESMA\_QUESTION\_DLT\_12>

##### How could these risks be addressed? Please explain by providing concrete examples, especially for the risks potentially affecting your organisation.

<ESMA\_QUESTION\_DLT\_13>

It is difficult to provide specifics as the technology is at such an early stage of development but as noted above the risks associated with use of DLT in financial markets need to be addressed through careful and appropriate design of any solution. A well designed solution should provide a mechanism for early identification of an issue, appropriate safeguards to address the outcome of any break down in the intended performance of the solution and a means to redress any fallout. This may include a cessation of activity and fall-back to an appropriate alternative. In summary, the critical point regarding mitigating potential risks of migrating to this new technology are awareness and good design.

<ESMA\_QUESTION\_DLT\_13>

##### Do you think that the DLT will be used for one of the scenarios above? If yes, which one(s)? If no, please explain?

<ESMA\_QUESTION\_DLT\_14>

ISDA anticipates that the industry will explore how DLT can be used to support all of the scenarios and purposes outlined in the DP. However, at this stage it is difficult to determine which of these purposes will be most suitable for this nascent technology as much of the analysis and related proof of concepts have been relatively small scale and often in isolation. Indeed it may be the case that while some uses are more ostensible these may provide less tangible benefit compared to others or may be capable of being solved through alternative technologies.

As noted earlier in our response it is possible that DLT based solutions to current industry challenges may be applied to specific aspects of the end to end process or to the entire process itself. Different industry participants, including CCPs, CSDs, trade repositories and other infrastructures will likely, in the first instance, utilise this technology in various ways that suit their business models and help them to meet their regulatory obligations (as opposed to DLT performing the function of a CCP or CSD itself). Where regulations remain static the deployment of this technology will need to fit within those regulations. However, should there be an opportunity to develop a stronger, more robust, safe and more efficient market structure as a result of developments in technology, be they DLT related or otherwise, we hope that regulators would be open to reviewing and evolving existing regulations to support this opportunity. Essentially, we hope that the industry and regulators would collaborate on evolving the financial markets to suit the needs of market participants as well as delivering the objectives of regulators and policy makers.

<ESMA\_QUESTION\_DLT\_14>

##### If the DLT is used for one of these scenarios, how compliance with the regulatory requirements attached to each scenario could be ensured?

<ESMA\_QUESTION\_DLT\_15>

ISDA would note once again that the focus should be on understanding the objectives of all industry stakeholders and using the technology to design a well functioning system. If this requires compliance with certain existing regulations then the design of the distributed ledger needs to consider this. However, where a given regulation is driven by existing technology and infrastructure which is capable of being replaced by these new technologies we hope that regulators would be receptive to considering changes to existing regulation to avoid legacy practices and rules becoming a constraint to the development of an efficient future state.

In light of this, one might ask if there is anything inherent within DLT that would compromise the FMI’s compliance with the legislation. The answer will depend on the specifics of the relevant regulation and, more importantly, a number of open questions yet to be answered with regards to the final form(s) of DLT – e.g. how privacy issues are addressed to a standard sufficient to enable widespread deployment. However, in certain cases, it is clear that DLT will not compromise compliance with a regulation. For example, CSDR mandates settlement “no later than T+2”. If a CSD utilises DLT that enables T0 settlement, this characteristic of the DLT framework does not compromise the CSD’s compliance with CSDR.

If a situation arises where DLT could pose challenges within a certain regulation, we would urge that policymakers take a flexible approach to such situations. The current regulatory framework could not have foreseen the potential impacts of DLT and these impacts may be positive. It would be unfortunate if regulation constrained such innovation which could lead to safer, more robust markets.

With regards to FinTech more broadly, policymakers have recognised this fact and begun to establish initiatives whereby firms can test innovative products that may not comply with current regulations. For example, numerous regulators (including UK, Singapore and Australia) have developed or are considering “Sandbox” frameworks in which, amongst other things, certain national rules may be temporarily waived in order to allow a firm to test a product in a controlled and live environment.

Note also the following scenario, related to, but distinct from, the examples above: It is also possible that DLT could be used to perform a function which is not currently regulated. In such cases, it is important that un-regulated functions do not become regulated functions solely due to the use of DLT to perform the relevant function.

This is in line with our guiding principle that DLT should not be regulated itself, and the focus should be on the functions/activities it is used to perform. If an FMI used DLT to perform an unregulated function in an inappropriate manner, regulatory action may be required. However, a decision to this effect should be determined on a case-by-case basis, rather than the sole determining factor being the use of DLT.

<ESMA\_QUESTION\_DLT\_15>

##### Do you think that the DLT will be used for one of the scenarios above? If yes, which one(s)? If no, please explain?

<ESMA\_QUESTION\_DLT\_16>

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<ESMA\_QUESTION\_DLT\_16>

##### If the DLT is used for one of these scenarios, how could compliance with the regulatory requirements attached to each scenario be ensured?

<ESMA\_QUESTION\_DLT\_17>

ISDA would note once again that the focus should be on understanding the objectives of all industry stakeholders and using the technology to design a well functioning system. If this requires compliance with certain existing regulations then the design of the distributed ledger needs to consider this. However, where a given regulation is driven by existing technology and infrastructure which is capable of being replaced by these new technologies we hope that regulators would be receptive to considering changes to existing regulation to avoid legacy practices and rules becoming a constraint to the development of an efficient future state.

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Note also the following scenario, related to, but distinct from, the examples above: It is also possible that DLT could be used to perform a function which is not currently regulated. In such cases, it is important that un-regulated functions do not become regulated functions solely due to the use of DLT to perform the relevant function.

This is in line with our guiding principle that DLT should not be regulated itself, and the focus should be on the functions/activities it is used to perform. If an FMI used DLT to perform an unregulated function in an inappropriate manner, regulatory action may be required. However, a decision to this effect should be determined on a case-by-case basis, rather than the sole determining factor being the use of DLT.

<ESMA\_QUESTION\_DLT\_17>

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

<ESMA\_QUESTION\_DLT\_18>

ISDA anticipates that the industry will explore how DLT can be used to support all of the scenarios and purposes outlined in the DP. However, at this stage it is difficult to determine which of these purposes will be most suitable for this nascent technology as much of the analysis and related proof of concepts have been relatively small scale and often in isolation. Indeed it may be the case that while some uses are more ostensible these may provide less tangible benefit compared to others or may be capable of being solved through alternative technologies.

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<ESMA\_QUESTION\_DLT\_18>

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

<ESMA\_QUESTION\_DLT\_19>

ISDA would note once again that the focus should be on understanding the objectives of all industry stakeholders and using the technology to design a well functioning system. If this requires compliance with certain existing regulations then the design of the distributed ledger needs to consider this. However, where a given regulation is driven by existing technology and infrastructure which is capable of being replaced by these new technologies we hope that regulators would be receptive to considering changes to existing regulation to avoid legacy practices and rules becoming a constraint to the development of an efficient future state.

<ESMA\_QUESTION\_DLT\_19>

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

<ESMA\_QUESTION\_DLT\_20>

ISDA anticipates that the industry will explore how DLT can be used to support all of the scenarios and purposes outlined in the DP. However, at this stage it is difficult to determine which of these purposes will be most suitable for this nascent technology as much of the analysis and related proof of concepts have been relatively small scale and often in isolation. Indeed it may be the case that while some uses are more ostensible these may provide less tangible benefit compared to others or may be capable of being solved through alternative technologies.

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<ESMA\_QUESTION\_DLT\_20>

##### If the DLT is used for regulatory reporting purposes, how could compliance with the applicable regulatory requirements be ensured?

<ESMA\_QUESTION\_DLT\_21>

ISDA would note once again that the focus should be on understanding the objectives of all industry stakeholders and using the technology to design a well functioning system. If this requires compliance with certain existing regulations then the design of the distributed ledger needs to consider this. However, where a given regulation is driven by existing technology and infrastructure which is capable of being replaced by these new technologies we hope that regulators would be receptive to considering changes to existing regulation to avoid legacy practices and rules becoming a constraint to the development of an efficient future state.

<ESMA\_QUESTION\_DLT\_21>

##### Do you think that the DLT could be used for other securities-related services than those already discussed, in particular trading and issuance?

<ESMA\_QUESTION\_DLT\_22>

As noted in answers to previous questions ISDA thinks that the industry will explore all possible use cases for this technology, however, the sense form our membership at this time is that, for derivatives, the technology is more suited to post trade activities. There are significant challenges associated with deploying the technology in the pre-trade space and the associated benefits are less well understood. The concept of issuance is not really applicable to derivatives.

<ESMA\_QUESTION\_DLT\_22>

##### Do you see potential regulatory impediments to the deployment of the DLT in securities markets?

<ESMA\_QUESTION\_DLT\_23>

It is difficult to comment at this time as the possible use cases are still at such an early stage of development. However, as commented earlier in our response a critical element of this process should be for collaboration between regulators and industry and an openness by regulators and policymakers to consider the evolution of the existing regulations to facilitate the deployment of this technology where there is a tangible benefit to the safe and efficient operation of financial markets.

If a situation arises where DLT could compromise compliance with a certain regulation, ISDA would urge that policymakers take a flexible approach to such situations. The current regulatory framework could not have foreseen the potential impacts of DLT and these impacts may be positive. It would be unfortunate if regulation constrained such innovation which could lead to safer, more robust markets.

With regards to FinTech more broadly, policymakers have recognised this fact and begun to establish initiatives whereby firms can test innovative products that may not comply with current regulations. For example, numerous regulators (including UK, Singapore and Australia) have developed or are considering “Sandbox” frameworks in which, amongst other things, certain national rules may be [temporarily] waived in order to allow a firm to test a product in a controlled and live environment.

<ESMA\_QUESTION\_DLT\_23>

##### 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.

<ESMA\_QUESTION\_DLT\_24>

Rather than react to the deployment of DLT at this time ISDA suggests that regulators pro-actively work with industry participants to ensure that where opportunities are identified to utilise this technology it is compliant with regulatory objectives. This may require regulators to review and replace or evolve existing rules to accommodate change provided it is consistent with their objectives. The industry is currently on a journey regarding this technology, learning its possible use cases and constraints and we would encourage regulators to join the industry on this journey before reacting to specific use cases. In particular it is important that regulators do not prematurely regulate this technology but focus on regulatory objectives resulting from its use.

<ESMA\_QUESTION\_DLT\_24>

1. https://www.esma.europa.eu/sites/default/files/library/2016-345\_financial\_innovation\_towards\_a\_balanced\_regulatory\_response\_-\_speech\_by\_v.\_ross\_0.pdf [↑](#footnote-ref-2)