



DTCC

NOVEMBER 2021

DIGITAL SECURITIES MANAGEMENT BRINGING PRIVATE MARKETS INFRASTRUCTURE INTO THE 21ST CENTURY

INDUSTRY UPDATE

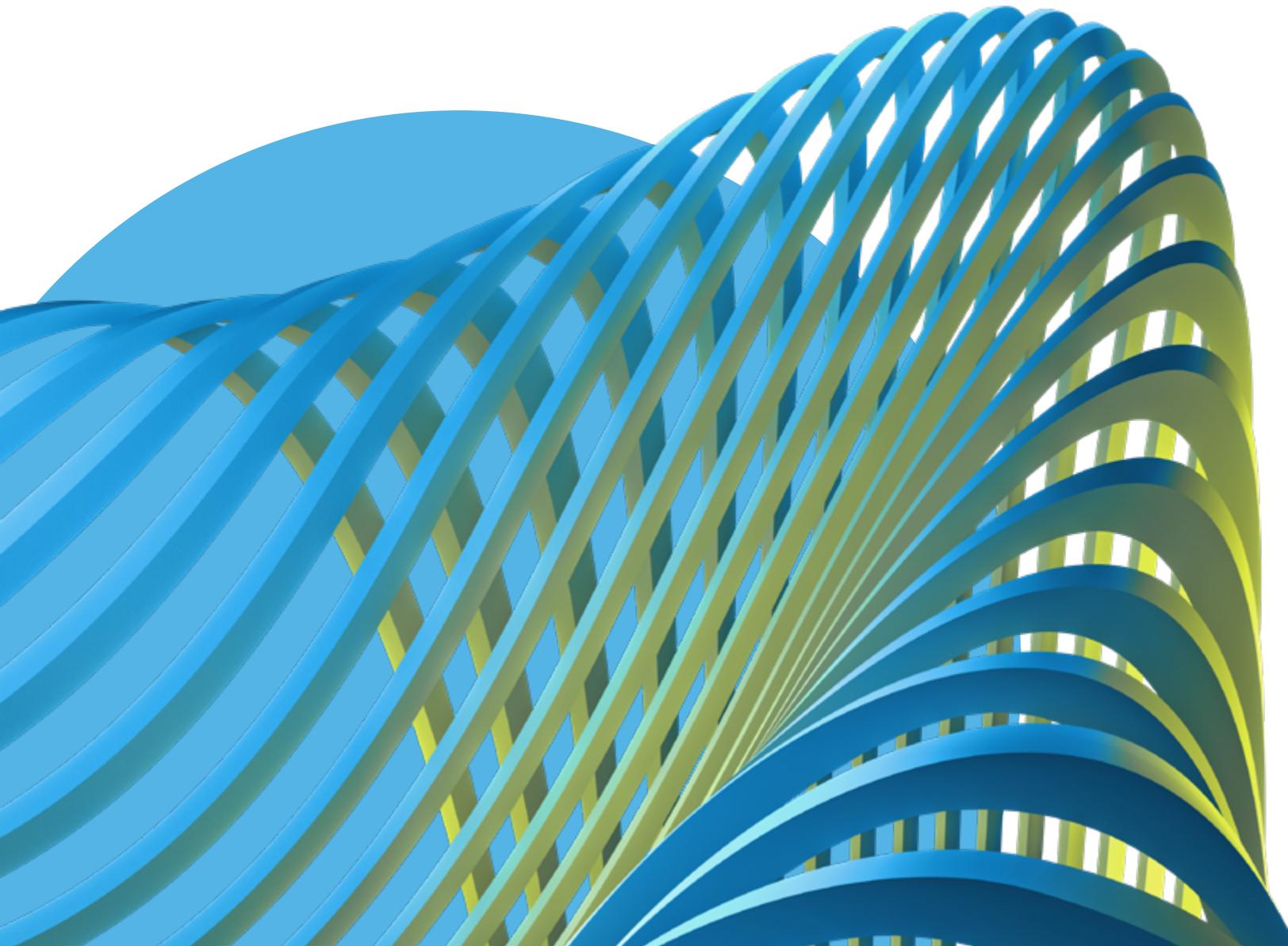


TABLE OF CONTENTS

- BACKGROUND 1**
 - Overview of DTCC’s Digital Securities Management Platform 1
- MODERNIZING PRIVATE MARKET INFRASTRUCTURE 2**
- SPOTLIGHT ON BOOK ENTRY+ 3**
 - How Does it Work? 3
 - Why Public Ethereum? 3
 - What are the Benefits? 3
- DSM BENEFITS THE ENTIRE ECOSYSTEM ACROSS THE FULL LIFE CYCLE OF SECURITIES 4**
 - Benefits of DTCC’s Digital Securities Management Platform 5
- THE PATH TO PRODUCTION 6**
- CONCLUSION 6**
- GLOSSARY OF TERMS 7**

BACKGROUND

In 2019, DTCC began researching the U.S. private markets to evaluate modernization opportunities based on unmet client needs, new technology and DTCC's ability to provide robust and resilient market infrastructure.

Following an extensive evaluation of the private markets and the drivers for digitalization, DTCC published a case study on [Project Whitney](#), a multi-phase project to address a range of issues, including manual processes, market fragmentation, regulatory uncertainty and a lack of trusted providers. We developed a prototype and engaged key stakeholders to validate the solution by:

- Hosting a series of one-on-one workshops with 40+ clients and market participants, including placement agents, custodians, transfer agents, cap table providers, broker-dealers and marketplaces;
- Meeting with 150+ representatives across issuer services, custody, placement services, trading, as well as technology and digital innovation functions;
- Showcasing the prototype solution at over 15 industry forums; and
- Completing three technical integrations for experimenting workflows and functionality with potential partner firms.

The industry response to Project Whitney was overwhelmingly positive, which served as a catalyst for deeper and more comprehensive collaboration with clients and stakeholders to further understand the challenges and pain points in private markets in their 'traditional' format, as well as new challenges related to security tokenization.

All of this work and collaboration has led to DTCC's decision to develop DTCC's Digital Securities Management (DSM) platform to transform and modernize private markets infrastructure¹.

Overview of DTCC's Digital Securities Management Platform

Digital Securities Management is a modular, service-based platform positioned to modernize and digitalize private market securities throughout issuance, distribution and secondary transfer. DSM will initially support pre-IPO equity securities ('Reg D' and 'Reg A' instruments), however, the platform was designed to easily scale and expand into other markets, positioning it to become the platform of choice for funds, debt, real estate, loans and other instruments that are underserved today from a market infrastructure perspective.

The DSM platform will help remove manual processes end-to-end, reduce cost, increase speed to market and bring private market operational flows in line with other streamlined and efficient asset classes. In addition, DSM builds on DTCC's history of mutualizing non-competitive, non-differentiating services, such as trade processing and asset movement. This is important as it enables firms in the private markets ecosystem to dedicate their resources to value creation opportunities.

DSM is developed on cloud-based technology and uses an application programming interface (API) design, while providing optional, blockchain-agnostic functionality to tokenize securities. This provides maximum flexibility for firms to choose the infrastructure that's most appropriate for them and their clients based on their current technology capabilities.

Finally, DSM supports more efficient secondary market liquidity, greater access to a broader set of investors and more streamlined capital raising processes. The vision of DSM is to enable a seamless transition for companies as they evolve from private to public. DTCC anticipates launching the first phase of DSM in early 2022².

All of this work and collaboration has led to DTCC's decision to launch DTCC's Digital Securities Management platform to transform and modernize private markets infrastructure.

¹ Implementation of DSM and its services discussed herein are pending regulatory review and approval by the U.S. Securities and Exchange Commission.

² Pending regulatory review and approval by the U.S. Securities and Exchange Commission.

MODERNIZING PRIVATE MARKET INFRASTRUCTURE: FOR TODAY AND FOR THE FUTURE

Given the explosive growth in private markets, there has been a proliferation of new entrants seeking to leverage innovative and emerging technologies, such as blockchain, to accelerate the modernization of systems and processes that have not kept pace with market evolution. While it is easy to see the potential efficiencies and benefits gained from these cutting-edge solutions, not all private market participants are prepared or able to transform their operating models at the same pace.

The lack of a coordinated transformation among market participants is likely to result in market fragmentation as firms develop their business models—with some struggling to meet existing regulatory guidelines and identify how new technologies could best be leveraged within their firms. As more players enter the space and fragmentation increases, it magnifies the importance of establishing common infrastructure and standards that benefit the greatest number of market participants, while allowing further innovation to prosper and thrive.

The feedback from market participants is clear, they require an industry-wide solution that, from inception:

- Provides immediate benefits to the largest number of current market participants through widely used, standard technology, such as databases, cloud infrastructure, APIs, and intuitive user interfaces; and
- Supports blockchain-agnostic tokenization functionality for market participants already prepared to unlock the potential of the technology.

As a result, with the expected launch of DSM in early 2022, the platform will support two complimentary models to modernize and digitalize private markets infrastructure:

TRADITIONAL SECURITIES ('BOOK ENTRY'):

At its core, DSM is built on a cloud-based infrastructure leveraging a relational database architecture to create a 'book entry' record of securities information and data, including security master files, investor and issuer registries, industry-standard security identification numbers and codification of transfer restrictions.

Clients will access the system using standard APIs and custom-built, web-accessible graphical user interfaces (GUIs). Integration into existing infrastructure by market participants will be straightforward, allowing for rapid time to market and adoption and, most important, immediate realization of benefits from a more efficient operating model.

TOKENIZED SECURITIES ('BOOK ENTRY+')

From launch, DSM will provide the option for market participants to create tokenized representations of a security without the need for bespoke technology.

Although it will initially integrate with the Public Ethereum Network, the DSM platform is architected to be blockchain agnostic, and additional public and private blockchain support will be rolled out based on client and market demand.

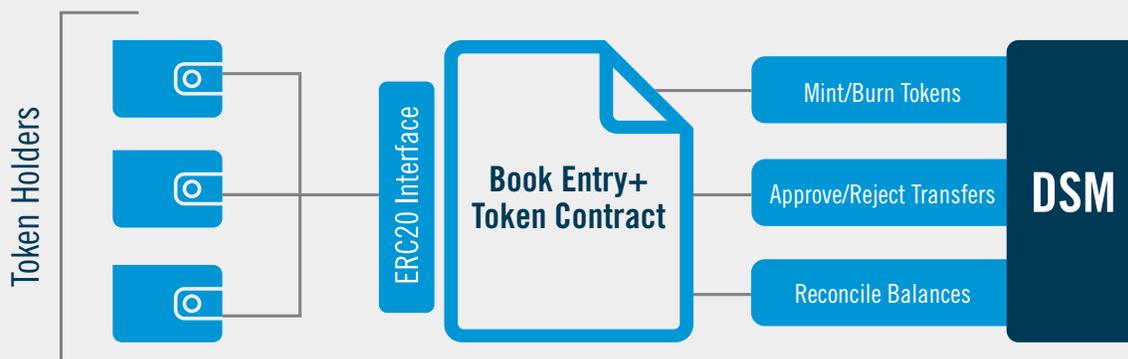
Importantly, DTCC is exploring the possibility of DSM serving as a Good Control Location³, which – subject to regulatory approval – would allow financial institutions to hold tokenized securities on an investor's behalf.

³ An entity's designation as a Good Control Location is based, in part, on its ability to maintain exclusive control over customer securities. See Rule 15c3-3 under the Securities Exchange Act of 1934 (17 CFR § 240.15c3-3), also known as the Customer Protection Rule. Use of DSM to establish Good Control is contingent upon regulatory consideration and approval by the U.S. Securities and Exchange Commission.

SPOTLIGHT ON BOOK ENTRY+

How Does it Work?

At the time of asset issuance, the DSM platform deploys a Token Contract implemented to maintain token balances and enable token holders to instruct transfers, query balances and a range of other capabilities. Tokens are then minted to the addresses associated with investors in a primary offering and linked back to the positions maintained in the DSM Stock Record. Any on-chain token transfer first seeks approval from the DSM Platform, which acts as a Blockchain Oracle and ensures transfer restrictions pass and off-chain records are updated. Due to the design of the Book Entry+ Token Contract, DSM validation cannot be circumvented.



Why Public Ethereum?

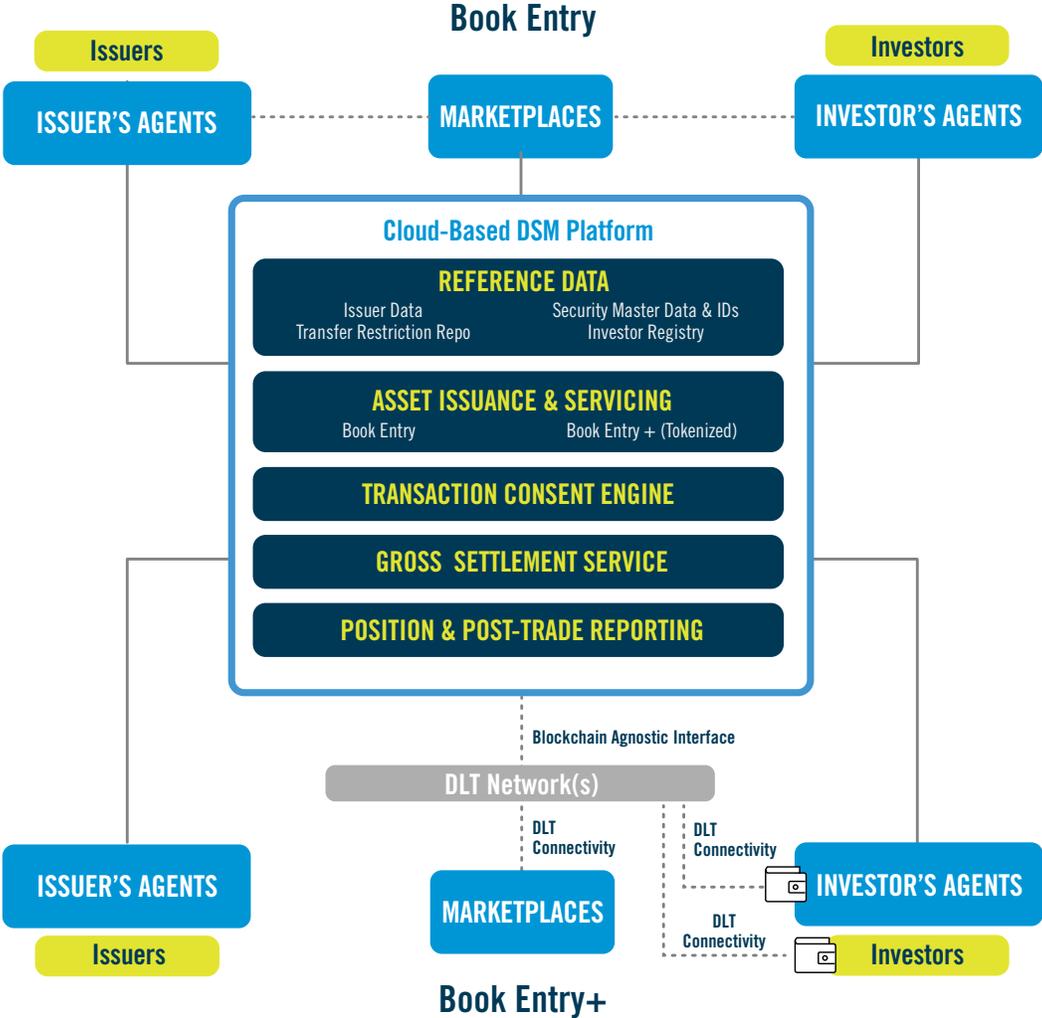
While the DSM platform is architected to be blockchain agnostic, the first release will support issuance of Book Entry+ securities on the Public Ethereum Network given the network's current adoption by financial institutions and the range of existing tooling and standards.

What are the Benefits?

- Compatible with existing tooling due to the use of an ERC-20 Interface
- Implements transfer restriction logic off-chain to enable the enforcement of complex restrictions while minimizing gas costs
- Allows the option for Investors to hold tokens directly in wallets, initiate transactions, and settle against on-chain payment mechanisms

DSM BENEFITS THE ENTIRE ECOSYSTEM ACROSS THE FULL LIFE CYCLE OF SECURITIES

Private markets operate today in a complex ecosystem served by a mosaic of market participants. DSM is designed to integrate seamlessly within that ecosystem:



Key features of the DSM platform across the life cycle of a security include:

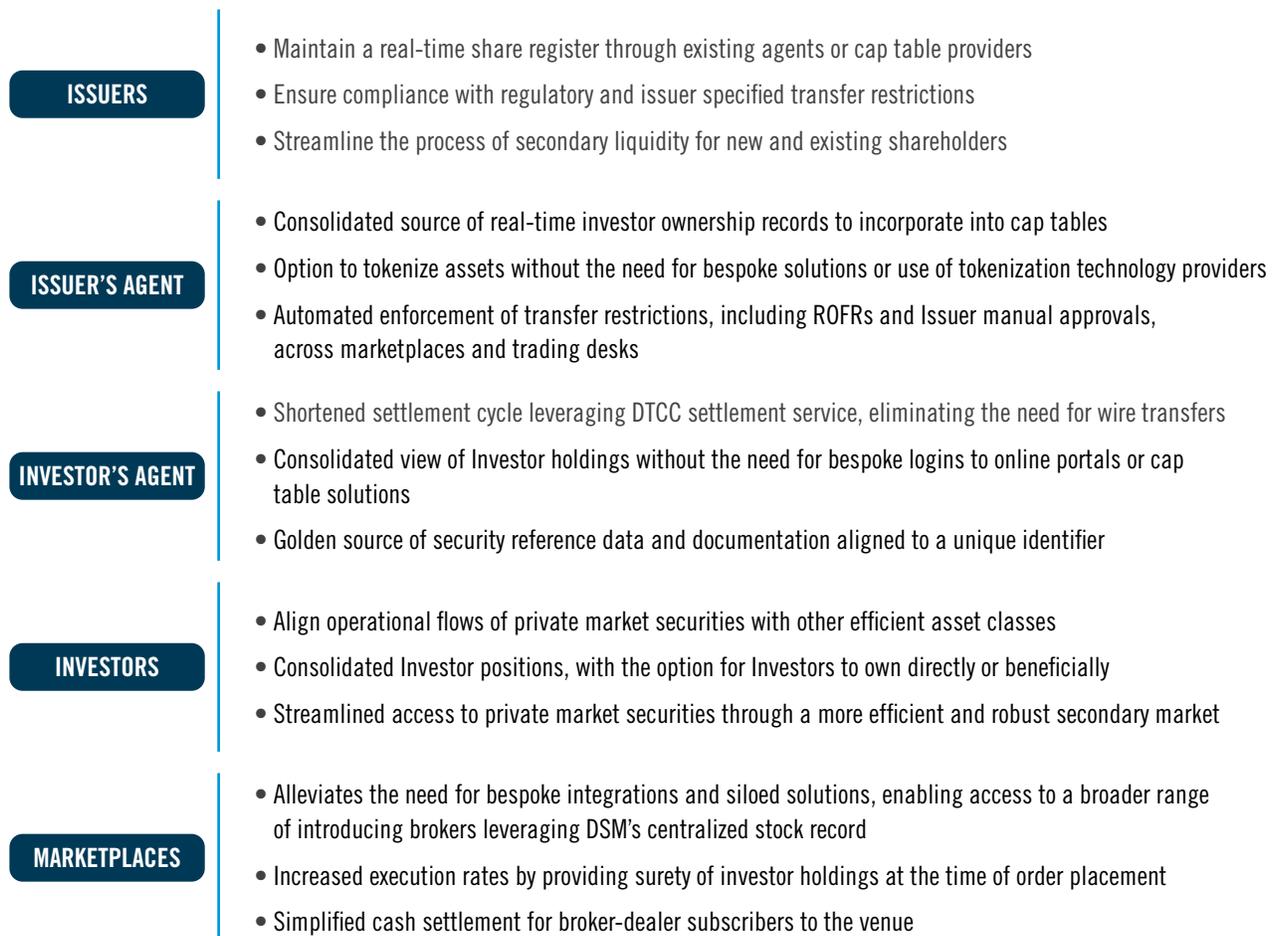
- ASSET ELIGIBILITY**
 - Creation of Security Master Record and assignment of unique asset identifier
 - Election of transfer restriction programs
- PRIMARY OFFERING**
 - Ability to upload a 'book' of primary Investors for offerings closed outside of the platform
 - Support for the distribution and closing of an offering on the platform
- ISSUANCE**
 - Uncertificated issuance (Book Entry)
 - Option for tokenized representation (Book Entry+)
- SECONDARY TRANSACTIONS**
 - Venue-instructed trade processing from Marketplaces
 - Participant-instructed bilateral delivery orders
- POST TRADE**
 - T+1 (or beyond) gross settlement for primary and secondary orders
 - Position and activity reporting for Investor's Agents and Issuer's Agents

Benefits of DTCC's Digital Securities Management Platform

As a foundational layer of market infrastructure that supports the full life cycle of private market securities, DSM is designed to provide a range of benefits for all market participants in the private market ecosystem:

- Cost mutualization of non-differentiated services, such as centralized stock record keeping and codification of transfer restrictions;
- Reduced operational costs through standards and increased automation, including security identifiers, T+1 gross settlement, and electronification of transfer restriction approvals; and
- A dynamic platform that is easily extendable and expandable to a broad range of private market instruments, including funds, real estate, debt and others.

In addition to the broader industry benefits, DSM provides many enhancements, improvements, and business enablers to specific private market participants:



Further, DTCC is exploring the ability for broker-dealers to hold customer assets while relying on DSM as a "Good Control Location" for both traditional and tokenized representations of securities, subject to regulatory consideration and approval.³

THE PATH TO PRODUCTION

DTCC is now in the production build phase of the Digital Securities Management platform and, subject to final regulatory approval, is expected to launch the service in early 2022.



From a product scope perspective, the initial offering will support Reg D and Reg A/A+ securities. Post-launch, client demand will drive the further evolution and expansion of the platform across both supported asset types (pooled investment funds, REITs, Debt, Loans and others), as well as alternate public and private blockchains.

CONCLUSION

DTCC has a long history of driving innovation to strengthen post-trade processes and providing resilient, secure and efficient infrastructure for the financial services industry. Our commitment to innovation is reflected in the platforms and processes we have implemented to protect the safety and soundness of the markets through record volume and volatility. The DSM platform represents the next step in our digitalization journey and serves as an example of incorporating innovative technology and business concepts designed to strengthen post-trade processes and provide a resilient, secure and efficient post-trade infrastructure for the industry.

While DTCC believes the digitalization of both financial and real assets shows great promise, efforts to develop highly efficient markets for these assets face substantial cost and complexities. Because markets are unpredictable and demand for new innovation may emerge over time, it is important to modernize infrastructure and processes in a way that enables use and adoption by a broad set of clients without forcing adoption of a specific technology. This approach puts value creation front and center.

DTCC welcomes engagement with all participants in the private market ecosystem. Please contact the DSM team at DSM@dtcc.com. We look forward to collaborating with the industry to advance the digital transformation of the private markets infrastructure.

GLOSSARY OF TERMS

Alternative Trading System (ATS) – *Trading venue operated by a broker-dealer that seeks to match buyers and sellers in securities transactions.*

Blockchain Oracle – *Any device or entity that connects a deterministic blockchain with off-chain data.*

Good Control Location – *An entity's designation as a Good Control Location is based, in part, on its ability to maintain exclusive control over customer securities. See Rule 15c3-3 under the Securities Exchange Act of 1934 (17 CFR § 240.15c3-3), also known as the Customer Protection Rule. Use of DSM to establish Good Control is contingent upon regulatory consideration and approval by the U.S. Securities and Exchange Commission.*

Investor – *The individual or institution who participates in the primary offering, or a secondary offering of a security.*

Investor Agents – *The companies who provide services to Investors to support their private market investment activities, including broker-dealers, prime brokers, custodians, fund administrators and others.*

Issuer – *The private company looking to raise capital through the offering of their equity security.*

Issuer Agents – *The companies who provide services to Issuers to support their private market investment activities, including cap table providers, transfer agents, placement agents, broker-dealers and others.*

Marketplaces – *Venues, such as Alternative Trading Systems, that match buyers and sellers of securities.*

Placement Agent – *An entity (usually a broker-dealer) that assists private companies in structuring and raising capital for an exempt security offering.*

Token Contract – *A smart contract deployed on a DLT Network that manages token balances and the methods by which token transfers can be invoked.*

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