



Keynote Address

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Three Principles for Innovating with DLT

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For nearly 50 years, DTCC has been responsible for seamlessly clearing and settling transactions for the global financial markets, including all U.S. equities as well as U.S. government securities and mortgage-backed securities in the fixed income markets. In addition, we provide a wide range of post-trade services across multiple asset classes.

In this capacity, we process nearly 175 million equity trades valued at almost \$1.7 billion every day, with peaks of 470 million trades valued at close to \$4 trillion and in 2020, we handled \$2.33 quadrillion in financial transactions.

As a critical market infrastructure, we operate three of eight designated Systemically Important Financial Market Utilities, or SIFMUs, in the US. That means the failure of, or a disruption to, any of our clearing agency subsidiaries could create or increase systemic risk and potentially threaten the stability of the U.S. financial system.

We play an essential role in the industry and, regardless of world events, we must seamlessly execute every day to protect the financial system and maintain investor confidence in the safety and certainty of markets globally. I am telling you this so you understand the sandbox in which we play; it is massive and continues to grow and we cannot miss a day of processing.

While our core mission has remained fundamentally unchanged, the way we've accomplished that mission has evolved considerably as we've implemented and integrated new technologies and processes into our systems.

Remember, our firm was created to address the “mountains of paper” that buried the industry and inhibited market growth in the 1960s and 70s. Solving that problem meant implementing new processes, such as immobilizing securities for book entry, and using cutting-edge technology for the time—main frame computers— to create the first-ever digitized securities.

Since then, we have continued to innovate and embrace new technologies to bring greater levels of standardization and straight-through processing to the markets to further reduce risk and cost. Due to the critical role we play, we must always balance advances in technology with the readiness of the marketplace to implement those advances into their own systems while maintaining the same—or greater—levels of risk management.

We need to be extremely thoughtful, careful and certain when assessing new technologies because there is no room for error when it comes to executing our responsibilities. At the same time, we are fully committed to innovation and digital transformation—especially as the pace of change increases rapidly. As fintech, cryptocurrencies and the digitalization of financial assets create new opportunities to strengthen post-trade processing, we are dedicated to working with the industry to help lead the evolution of the marketplace.

I share this background to set up my remarks today, which will focus on the growth and use of distributed ledger technology from the perspective of a critical market infrastructure:

First, I'll talk about DLT's progress since it first captured the attention of the industry about six years ago and was hailed as a potential solution to countless operational challenges. Second, I'll highlight the three guiding principles we use when evaluating opportunities for leveraging DLT and how we apply those principles within the context of a SIFMU. Third, I'll discuss the table stakes that must be met for our firm to advance DLT as a potential solution.

DLT as a Foundational Step

Let's begin by looking back to 2015 when the industry first began to seriously consider the role that DLT could play in modernizing how global markets operate. It's important to consider the past so we can understand the progress we've made in maturing the technology, evaluating how our thoughts on its application have evolved and providing perspective as experiments and use cases move into implementation.

In my 30+ years in financial services, I can't remember another technology that has captured the imagination of the industry like DLT. We've all come to recognize that permissioned DLT networks could act as powerful catalysts for change and could open the door to a new era of new business workflows that would enable transactional exchanges of assets and payments to be recorded, linked and traced through their entire lifecycle.

We saw the opportunity of eliminating traditional "data silos" so that parties would no longer need to build separate recording systems with a copy of their version of information—all of which lead to time delays, unnecessary costs and data quality issues. We also understood the advantages of building security and resilience into a platform to encode business logic and regulatory requirements into trade contracts and offering visibility to regulators through nodes to give them real-time access to ledger transactions.

It's no wonder that DLT was hailed as the great disruptor that would enable firms to reimagine the way they conducted business on a shared, but secure and private platform. There was even talk—possibly from a few of you at today's event—that DLT would replace trusted intermediaries like DTCC. I'm delighted to say we're still here—and even happier to report that we intend to be around for many years to come. While I'm certain our role will evolve and change—and we're actively planning for that—trusted intermediaries will continue to play a fundamental role in ensuring the safe, orderly and efficient operation of global markets.

I say this because as a recent Wall Street Journal article points out, "all of defi comes with two basic risks that much of Wall Street has been designed to minimize: fraud and operational mistakes." Unfortunately, we are at a point where the technology advances and excitement around its potential is expanding everyday but the financial ecosystem, including regulations, has yet to fully adapt. This isn't a criticism. I think there is a view that being overly hasty in regulation could stifle innovation.

At the same time, we can't lose sight that the purpose of these rules isn't just about control, they are about protecting investors, large and small, from fraud and operational mistakes. This is why I believe financial intermediaries will play a critical role in the new world. We can be the bridge between the two. I also believe that while there are some investors and traders who are willing to place all trust in technology alone, the vast majority will want the certainty of oversight, regulation and investor protection. Any product or system must meet the high-risk management requirements established in the market.

As difficult as it may be, there needs to be a meeting of the minds between the overseers of financial markets and the proponents of DeFi, or we risk stifling innovation and creating markets which are unsafe in which to operate; the worst of two worlds.

The interest in the use of DLT remains very high across the industry because it holds great potential, but, while there have been many successes within firms and especially in the payments world, its use has not quite lived up to that initial hopes just yet in terms of replacing the existing securities ecosystem.

In fact, a recent Gartner survey of financial services CEOs saw DLT listed beneath AI and cloud computing in a question about technology that would most significantly impact the industry over the next three years. As Gartner noted, “It is, in our opinion, positive to see that CEOs in the [financial services] industry have a more realistic perception about hyped technologies such as blockchain.”

That statement reminds me of a quote from [*Embracing Disruption: Tapping the Potential of Distributed Ledgers to Improve the Post-Trade Landscape*](#), our first DLT white paper in 2016 : “While distributed ledger technology has captured the imagination of the industry, key challenges with the platform will need to be overcome before it can be widely adopted or considered enterprise-ready. In addition, the industry itself needs to determine whether using the platform is more cost effective than improving existing technology and whether it can overcome its inherent scale and performance challenges.”

Yet, while we’ve seen that that DLT has limitations, it would be foolish to underestimate its potential long-term power. In fact, in five years or so, we may see a very different result about DLT in a future Gartner survey. For that reason, the industry must collaborate and build the digital infrastructure of the future as a foundational step to support the eventual, and inevitable, transition to digital markets and tokenization.

Guiding Principles for Evaluating DLT

During the last several years, we’ve been pursuing a number of digital solutions, and these efforts have helped us build solid expertise in blockchain. We’ve also gained a deep understanding of where we believe DLT can serve as the most appropriate solution to an industry pain point or operational challenge.

At DTCC, we embrace the concept of continuous learning, so we’re continually challenging our assumptions, testing out new ideas and taking smart, calculated risks to drive digital innovation. One approach we’ve embraced is a “minimal viable product” model for developing DLT initiatives, which helps to reduce development time and introduce products for testing, client feedback and iteration more quickly. From all of this work, we’ve been able to develop three guiding principles that inform our thinking about DLT.

Principle #1: Identifying the White Space

The first principle focuses on “when” to use DLT, typically by identifying “white space” areas where technology can enable or introduce better and faster infrastructure than currently exists. In other words, we examine ways to use the technology to create efficiencies in markets that are predominately manual, prone to human error, lack standardization, and need improved distribution, proactive transaction compliance and a dynamic ecosystem.

In today’s global marketplace, with its enormous scale and scope, there are opportunities where DLT can drive improvements in processing, but the challenge is identifying use cases that have a strong business rationale and can deliver significant client value. Finding these types of opportunities requires extensive market knowledge, an in-depth understanding of your clients’ needs, data, analytics and a commitment to innovation, among other things. Over time, we believe DLT will serve as an important tool to streamline long-standing processes across different markets and asset classes.

When we applied this principle to the private securities markets, it checked all the right boxes. Private markets are growing exponentially—in terms of the number of issuers and capital raised—as companies stay private longer, and conversely, there’s been a decline in the number of companies going public. The shift in those scales means that “Main Street” has limited access to companies in that critical growth stage, which restricts their ability to invest.

As we examined the private securities market, we identified strategic opportunities to improve processes for issuers, expand eligibility for private markets securities, introduce DLT and tokenization to increase access, and define a business model for a more effective ecosystem—a true “white space.” Those efforts resulted in our prototype for Project Whitney—a modular, service-based platform to support the tokenization of assets throughout issuance, distribution and secondary transfer for private securities. Using DLT, APIs and cloud, Project Whitney as a Digital Securities Manager as we call it, will enable us to apply our regulated infrastructure and governance models to make the private securities markets more efficient by streamlining manual processes, and reducing costs and risks.

Our Innovation team worked closely with industry stakeholders on the development of this platform and is creating a launch plan for the coming months. This is one of the most exciting and potentially transformative initiatives we’re leading today, and we believe it could have far-reaching implications for our industry over time.

Principle #2: Bolting DLT Onto Legacy Systems

While pursuing solutions in “white space” allows firms to proceed unimpeded by existing technology, the reality is that most companies already have hundreds of millions of dollars invested in their technology stacks. And many of them may not have the desire nor financial wherewithal to move away from that legacy technology until they’re sure there is a more effective and cost-efficient alternative.

This reality underpins our second guiding principle: Bolt-on products and services enabled through DLT can drive additional client and business value to existing products, services and/or solutions. Of course, the first question you’re probably asking is: how will a “bolt-on” work? The approach we’re taking with Project Ion relies on DLT functionality to create new efficiencies for accelerating settlement in the U.S.

As you know, we worked with SIFMA and ICI several years ago to move the US markets from T+3 to T+2—a massive undertaking that required elaborate coordination across hundreds of stakeholders. This was a significant accomplishment for the industry, and DTCC is very proud to have played a leadership role in bringing about this change. While there was little industry appetite at that time to further reduce the settlement cycle, we continued to build momentum by creating a more dynamic and intelligent processing environment through re-engineering night-cycle processing. In that case, we used existing technology to deliver benefits to clients.

Today, we’re again partnering with SIFMA and ICI to develop a blueprint to implement T+1 within the next two to three years. And we’re also continuing to innovate and drive change with Project Ion. What’s unique about Ion is that we’re approaching the issue from a new direction. We’re using DLT to support the journey to shorter settlement cycles—not just T+1 but T+0 settlement—while retaining the advantages of central netting and the trade guarantee of a CCP, and preventing fragmentation of the clearing and settlement ecosystem.

During this past year, we built and tested a functional prototype outside our core systems using test data that provided clients with multiple interfaces, including a DLT Node and an API interface. As we announced earlier this month, we’re planning to launch the initial phase of the platform in the first quarter of 2022. It will support limited bilateral deliver order transactions that will be initiated by participants through client nodes hosted by DTCC.

Transactions submitted through the Ion platform will be processed and passed on to our DTC systems for settlement processing. As transactions are processed, status change messages will be sent back to the Ion platform and posted on the Ion ledger, but our legacy DTC settlement system will remain the authoritative record. It is an integration of a DLT platform with legacy technology which provides clients optionality in how they wish to settle.

While DTCC already has the operational capability to clear and settle transactions on T+0 with existing technology—we handle about 1 million of these trades every day—Ion provides an excellent opportunity for clients that want to shift their development plans and prepare for a full DLT operating model without waiting for full industry adoption.

Principle #3: Modernizing Infrastructure

When we think about DLT, it's clear that the biggest challenge to its adoption also tends to hold the greatest potential for its impact. This isn't surprising because reimagining critical infrastructure or revising essential processes is very complex work, but it's important to always stay alert to these opportunities.

This approach informs our third guiding principle: explore "how" DLT can be used to modernize current infrastructure, introduce further automation and improve end-to-end asset servicing.

In many ways, it's a bit like playing multi-level chess, where every move affects another, and it requires a very disciplined approach. As we know from experience, transitioning from legacy to new technology requires DTCC and our clients to live in a parallel world for a time—we need to fulfill our mission with legacy technology while testing tools, including DLT, to ensure that markets can continue to operate seamlessly. That type of reconfiguration requires significant planning, coordination and communication throughout an organization and across multiple industry stakeholders, including the regulatory community.

Because of the critical nature of the work we do, we need to pursue these opportunities in ways that won't disrupt the daily processes. When considering these types of initiatives, it's always a good idea to keep Hippocrates in mind: "First, do no harm." And we also have to consider how regulations governing legacy technology apply or do not apply to new systems, as well as how they might need to be adapted.

Across most of the industry, this type of work is still in its early stages, but we're seeing examples of this principle being applied on a system wide basis. Earlier this month, SIX, Switzerland's stock exchange, announced it obtained regulatory approval to operate an exchange and depository for blockchain-based securities and plans to launch regulated trading, settlement and custody infrastructure based on DLT. And ASX, the Australian Exchange, continues to work on a DLT platform to replace its CHES system.

Each of these initiatives are underway in markets that are much smaller than the US capital markets, but they will bring important learnings and new insights to help shape future endeavors here at home. Inevitably, these trail blazers will encounter difficulties and learning moments; that's why they are called trail blazers. But we should applaud and support their undertakings as they will provide a foundation upon which all future DLT platforms can build.

Topic #3: Table Stakes

These are the guiding principles we use when considering opportunities for using DLT, but there's another component – what I call "table stakes" – that serves as a threshold before any DLT initiative proceeds beyond the white board. I want to mention two of them today.

The first is having a strong governing structure and standards in place. Two years ago, we issued a white paper, in partnership with Accenture, that outlined a governance operating model and tools for managing the DLT landscape. We received a lot of positive feedback, and it has sparked a series of important conversations with stakeholders across the industry. We see this as a good starting point because governance and standards are critical for establishing clear and consistent frameworks for DLT networks while also helping to avoid the type of fragmentation we saw 30 years ago as firms began developing their own systems with little interoperability or communication.

Second, we need to ensure that any DLT implementation, or for that matter, all new technologies that are used in developing new products or services are capable of providing the same, or greater, levels of risk management and protection for the industry. It comes down to this: The upside of technology can be significant, but if the potential risk outweighs the benefit, it's not a viable solution.

Conclusion

The digital transformation of the industry is moving rapidly, and DLT will play an important role in the evolution of that ecosystem. The three guiding principles I shared with you today offer guidance—though they are certainly not definitive—and I hope you found them instructive as you and your firms consider creative, new uses for the technology. The benefits of DLT and other fintech are real and substantial, and technology is rapidly changing the speed and operations of financial markets.

It's clear that a comprehensive digital transformation is arriving, but the way in which that transformation occurs remains to be seen. No doubt it will be a lengthy and complex process that will require supporting transactions in multiple forms—from legacy de-materialized all the way to natively issued digitized securities. It may very well be that the building of the platform of the future is the easy part and it will be the transition from legacy to the future that will be the most complicated part of the process.

As market participants, we're fortunate that we get to write the opening chapters of this story. It's a rare opportunity to play a role in reimagining how an industry operates and to put your mark on building a better future. We're excited to join with all of you, and our many stakeholders across the industry, on this journey.

Thank you very much.