



Getting practical

Real use cases for blockchain and Distributed Ledger Technologies in the Asset Management sector



KPMG International

kpmg.com

Foreword

Just recently, blockchain and Distributed Ledger Technologies (DLT) were considered merely aspirational and a form of exaggerated hype. Many were claiming that these technologies would not fulfill their potential for disruption and revolutionize the asset management sector. Although, today these aspirations are in fact approaching reality.

There are many amazing benefits of blockchain and DLT that should be taken seriously. Many asset managers or banks are starting to recognize the wide range of benefits that this new technology could deliver.

To illustrate, we have created this document — to cut through the hype of blockchain and DLT to offer real and practical examples of how these technologies work in the asset management space.

In the following pages, we look at three specific areas where blockchain and DLT are disrupting the status quo for asset managers and their value chains. We spotlight new startups and platforms that are influencing the adoption of the technology within the sector. And we offer a few key takeaways to help managers and value chain players prepare for the future.

There is no doubt that blockchain and DLT technologies will have a fundamental — and in some cases disruptive — impact on the sector. Our advice to all players in the value chain is to start developing a clear and strategic roadmap that will allow your organization to respond to, and capitalize on, the shift towards blockchain and DLT technologies. Even for those whose business may be substantially affected, it is time to examine the strategic evolution and the re-definition of the business model.

We also advise organizations and managers to learn more about blockchain and DLT. We encourage them to talk to all players in the new environment — advisors, startups, Fintech investors, regulators and others — to better define their roadmap.

To learn more about these — or other emerging concepts and ideas — we encourage you to contact your local KPMG member firm or any of the contacts listed at the back of this publication.



Tom Brown

Global Head of Asset Management

Some definitions:

Distributed Ledger

Technologies (DLT): Distributed Ledgers are basically any shared, replicated and synchronized databases spread across multiple locations. DLTs leverage the cloud to allow parties in a value chain or ecosystem to share data securely in near real-time, thereby opening up new opportunities for peer-to-peer collaboration and transactions.

Blockchain: Blockchain shot to fame as the distributed database behind the digital currency, bitcoin. But it is just one of many different types of DLT platforms now in operation. While people tend to use the term blockchain as a synonym for DLT, it is important to remember that the DLT ecosystem is much broader than one technology or platform.

Smart contracts: Smart contracts are standardized, fully-automated and autonomous financial instruments that facilitate, verify and enforce attributes of a contract according to predetermined scenarios. Underpinned by DLT technology, smart contracts ensure that agreements are fulfilled by all parties, automatically and in near real-time.

If you only read one thing...

Here are five reasons why everyone in the value chain should be thinking carefully about blockchain and DLT.

- 1. It is rapidly becoming the underlying approach of the global system infrastructure:** More than a single solution or technology, blockchain and DLT technologies essentially connect together to form a new type of market infrastructure that sits on top of — and integrates into — existing systems and processes. And in doing so, it is quickly penetrating and changing the way firms, regulators, investors and managers communicate and share data.
- 2. It is enabling future competitive advantage:** Blockchain investments may not be paying massive returns yet, but they are allowing some firms to create the right platform for future growth. The adoption of blockchain and DLT should unlock unprecedented business flexibility, improved efficiency and new capabilities that could be leveraged to rapidly respond to changing market dynamics and competition in the future.
- 3. It is fundamentally disrupting the value chain:** Blockchain will add significant value — by improving confidence between parties, reducing friction in the value chain and speeding up complicated inter-party processes. But it will also mean the disintermediation (or, more likely a refocusing) of certain players in the value chain. Players should be sizing up their future position and managers should be reassessing their value chains. Certain players such as the transfer agents and the clearing and settlement houses will need to address their future in the value chain and migrate to a new model.
- 4. It will be ubiquitous within the next 5 years:** We expect to see many players (particularly in the mid- to large-sized funds) start to shift processes and transactions towards blockchain and DLT platforms over the coming year, thereby creating the scale to drive ubiquity. Several asset managers are starting to use blockchain technology for key activities and even a large part of their value chain.
- 5. It is supported by regulators and watchdogs:** In several jurisdictions regulators are already consulting the asset management industry to consider the use of blockchain or DLT. One important aspect, amongst others, is to permit the issue of shares by blockchain and the account shares management in the blockchain to unlock the potential of these technologies. These consultations suggest that regulators and watchdogs are carefully considering how the technologies could be used to improve market transparency, compliance and auditability.

Distribution

The fund distribution value chain is facing massive disruption. Could DLT be the value-generator everyone is looking for?

Cost pressures are rising. Margins are being squeezed. And new regulation — particularly MiFID II — is threatening the very foundations of the distribution value chain in Europe and beyond. At the same time, fund managers are looking to 'move to the middle', potentially disintermediating the distribution network in the process.

Fund managers want lower costs, faster processing times, better value from their distribution value chain and direct access to the final investors. And most of the value chain players want to provide just that. For many, it is a matter of survival.

DLT to the rescue?

Using a platform underpinned by a DLT, fund managers and distribution players could dramatically reduce the cost and time associated with transactions. With all players participating in the platform, transaction information can be routed, recorded, reconciled and monitored securely and in near real-time using blockchain technology.

A DLT platform could, for example, allow asset managers to receive transaction information within milliseconds of the purchase. And it could reduce the costs of KYC, AML, order routing and other fund administration for asset managers.

The new reality

For asset managers, the shift towards a DLT-enabled platform will not only help reduce costs, it could also unlock a number of direct-to-consumer opportunities that will become increasingly valuable as Europe (and other jurisdictions) move towards MiFID-type restrictions on retrocessions and incentives.

For players in the distribution value chain, the shift to DLT will create an unprecedented opportunity to automate the more commoditized parts of their business in order to focus on adding value by, for example, providing increasingly intelligent interfaces to manage increasingly complex subscriptions that have direct access to the final investors.



One to watch: FundsDLT

FundsDLT is a digital funds distribution platform that connects asset managers, transfer agents, investors, custodians, regulators and others through a DLT-enabled platform, offering a technology of transactions using smart contracts and DLT. The solution was created through a partnership between InTech, Fundsquare and KPMG and was recently showcased to asset managers and regulators in Luxembourg.

The platform will allow asset managers to sell funds directly to investors, which in turn will dramatically reduce the cost of administration and the time taken to process transactions.

The platform, perhaps better referenced as an ecosystem, aims to streamline a whole range of fund administration and order-routing tasks by using blockchain to automate several processes in a secure manner. In other words, the messaging that must occur amongst the investor, the asset manager and the custodian bank is about to become much simpler. Whereas the current time between an investor making a decision and the transfer agent takes between six to ten days. The new fund distribution product could complete the process within a couple of hours. And in the not-too-distant future it will be seconds, provided that the NAV will be calculated in real time.

FundsDLT is currently in advanced trials with several large asset managers in Europe and the US.

Q&A with Said Fihri, KPMG in Luxembourg

Q: What is FundsDLT's value proposition to the market?

A: FundsDLT wages war on administration and transaction processing. Using DLT technology and smart contracts, the FundsDLT platform essentially automates the clearing and settlement process and transfer agent activities. On top of that it aims to mutualize the AML and KYC between the various market participants. But it's not just about cost savings and faster processes. It's also about creating the right 'plumbing' to support sales directly to consumers at a low cost.

Q: How has the idea been received?

A: I think everyone — from asset managers and regulators through to individual distribution players — recognizes that dramatic change is underway in the way funds are distributed. And I believe that many now agree that DLT can underpin a much more secure, transparent and cost-effective system. The problem for distribution players will be in finding new ways to deliver value in a DLT-enabled environment. Naturally, the new product augurs a broader change in the fund industry's pool of expertise. Intermediaries, like transfer agents, have great stores of knowledge and are well placed to be an active part of the industry's revolution. However, they also have the most at stake when it comes to digitalized fund distribution. Clearing and settlement houses will also be impacted, but I think everyone is very optimistic about how the potential and impacted participants can reshape their activities by creating new added value for the industry.

Q: How can the sector participate?

A: While we are currently working with a select group of asset managers in Europe to test the platform, we are keen to get as many players — asset managers, regulators, custodians, transfer agents and others — involved. Today we have a large group of asset managers participating in the project as observers on monthly committees, additionally, we are conducting testing with some of them. Soon we will be executing the first subscription and redemption orders. But, regardless of whether they participate in FundsDLT or others that may be developed, our advice is for asset managers to start thinking about how DLT technologies may create value within their value chain.

5

takeaways
for the sector

1. DLT will likely underpin future distribution models and value chains
2. Cost and time-savings can be achieved through DLT enablement
3. New opportunities to interact directly with consumers are emerging
4. Players in the distribution value chain will need to refocus their value proposition
5. Asset managers should be assessing their current value chain and future requirements.

Middle office and clearing services

DLT-enabled platforms are elevating middle office functions from cost centers to profit enablers. Is your middle office thinking strategically about DLT?

Let's face it, clearing processes don't add a lot of value, but they are critically important to the trading of derivatives and other instruments. Indeed, for most banks and firms, clearing services (like many other middle office functions) are seen as a cost center; a basic requirement of doing business.

For others, however, technology is helping turn clearing services into a source of competitive advantage by helping to reduce systemic risk which, in turn, allows them to better manage their capital.

The DLT advantage

Using automated smart contracts and distributed ledger technology, asset managers can essentially automate most of their operational processes, including booking, the posting of collateral, reconciliation, risk monitoring and PnL calculations.

DLT basically allows collateral to be securely transferred in near real-time, thus virtually eliminating the credit risk linked

to the window between margin call and receipt of margin. And that means that central counterparties (CCPs) and asset managers can reduce their margin requirements.

Being strategic

Asset managers are rethinking their unique selling propositions and how they really add value. And they are recognizing that DLT-enabled platforms could allow them to reduce their costs and improve their liquidity. Some are then making the decision to outsource while others are improving their DLT capabilities to create competitive differentiators in the future.

Central counterparties also recognize that their value stems from managing risks, not processing payments and are therefore looking to DLT platforms to allow transactions to flow more freely. As a result, they are able to offer a more cost-effective, faster and easier service to customers.



One to watch: DPactum

DPactum is a privately-held company focused on harnessing DLT and smart contracts to build a next generation solution for clearing and managing exchange-traded financial derivatives. The technology takes an end-to-end perspective of clearing services and operates as an app that works on top of existing DLT infrastructure.

DPactum recently started piloting their technology with a group of market participants in exchange-traded derivatives trading and clearing, but plans to roll the platform out to other derivative products as the ecosystem develops.

Q&A with Colin Platt, Co-Founder, DPactum

Q: What is DPactum's value proposition to the market?

We firmly believe that DLT and smart contracts can generate significant value for the derivatives trading industry, across multiple dimensions. Our solution allows banks and asset managers to continue to add value, but at a much lower cost. That means their people can focus on finding new sources of revenue that may not have been accessible before. And by using DLT, we can help reduce systemic risk, manage capital costs and speed up the process which provides even more value for clients.

Q: How has the idea been received?

We have talked to a number of banks and asset managers around the world. Some immediately understand the strategic value that DLT-enabled services can deliver and get significant buy in from senior management. I think they recognize that this could create both cost savings and growth opportunities. We are already piloting our solution with a handful of market participants and have received fantastic feedback on both the platform and the outcomes it delivers.

Q: How can the sector participate?

DLT solutions are heavily influenced by the 'network effect' — the more parties involved, the greater the value of the network — so we are continuously working with banks and asset managers to expand our ecosystem. We would also like to continue working closely with central counterparties and regulators to help improve awareness and adoption of DLT-enabled solutions.

5

takeaways
for the sector

1. DLT could fundamentally alter the underlying clearing infrastructure for derivative trading
2. Senior management support helps create strategic alignment
3. DLT is not just about cost savings but also about creating value
4. Those that engage early in DLT will be the first to uncover new value opportunities
5. Rigorous testing will be required before new clearing solutions can be implemented.

DLT enablement

In today's market environment, asset managers need access to timely, accurate and trustworthy transaction data. Are you ready to make the most of DLT?

As asset managers diversify and expand their portfolios and markets, many are struggling to consolidate, curate and manage their various transaction data sources. Costs are rising. So, too, is the complexity.

With fees coming under continued pressure and operating expenditures under intense scrutiny, asset managers and banks are looking for more agile technology solutions that can cost-effectively meet their complex data and information needs. Some recognize that their ability to adapt to future trends will largely depend on the agility of their technology infrastructure.

Putting DLT to work

As a secure, distributed and immutable record of ownership and value, DLT technologies allow asset managers to utterly rethink their business models and core processes. Rather than a packaged solution or tool set, DLT technologies

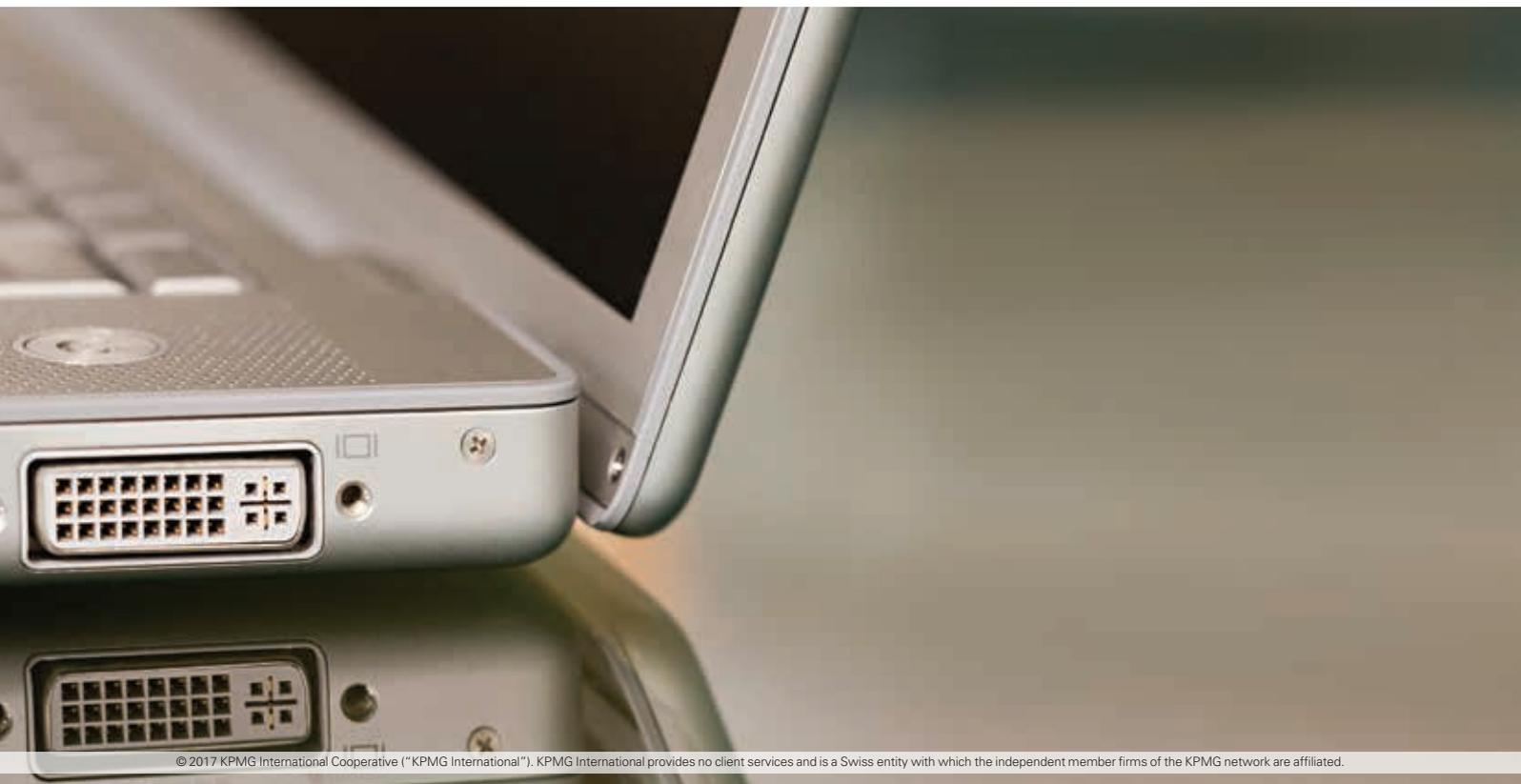
provide a trusted platform upon which asset managers and others in the value chain can interact and transact on a peer-to-peer basis.

DLT platforms let asset managers identify and remove inefficiencies in their processes by eliminating intermediaries and creating trust between market players.

An unstoppable shift

Leaders in the sector recognize that DLT-enabled platforms offer unique advantages to their current process environment. Some are already shifting discreet books of business over to DLT platforms while others are creating strategies for transferring their entire data system onto these platforms.

Over the next five years, we expect DLT to become embedded into many asset managers' core systems. And that will require a significant shift in the value proposition of other key players, particularly custodians and transfer agents.



One to watch: Aprexo

Aprexo Limited is developing a cloud-based multi-asset investment platform that uses DLT capabilities and a extensible data classification scheme to help asset managers, regulators and market infrastructure providers make the most of DLT technologies. The Aprexo platform is delivered as Software-as-a-Service (SaaS) and is hosted in Microsoft's cloud, Azure.

Aprexo intends to create a small consortium of asset managers who are testing and advising on the platform's usability, adaptability and value.

Q&A with Markus Ruetimann, Executive Chairman, Aprexo Limited

Q: What is Aprexo's value proposition to the market?

Our focus is on delivering value to asset managers throughout the investment lifecycle. Our platform provides asset managers with core information such as investible cash, investment performance and what-if portfolio modelling capabilities. It is designed and built to allow easy, quick and cost-effective installation, and then similarly quick on-boarding of new investment vehicles, security classifications and data schemes.

Aprexo's open architecture interconnects with client-chosen or client-built applications through APIs, leaving the choice to our clients rather than to dominant software providers. Much of the most innovative and exciting asset management software at the moment is being developed by small firms — client-focused, responsive, with modern IT architectures, and usually cloud-based. Many are harnessing the power of DLT and encryption technologies. Aprexo's marketplace approach is designed to allow clients to install such firms' products quickly and easily.

And, while we can move extremely quickly, our approach is to allow clients to migrate at the speed they require in order to achieve the functionality they need. Everyone in our organization comes from an investment management background, so we are uniquely focused on what the sector really needs.

Q: How has the idea been received?

We have seen great interest from asset managers and we are currently working with a number of them to develop the platform further. I think asset managers like the idea of having their data in the cloud, they like the idea of improved extensibility and they like being able to choose which services they keep and which they outsource. They also like the idea that they are buying into and testing a next-generation idea — that certainly makes their CEOs happy.

Q: How can the sector participate?

Right now, the best thing asset managers can do is experiment and learn about the third generation technology and the digital platforms. They can learn from each other, from participating in consortiums, from advisors and from hands-on testing, in so-called sandpits. But the key is to have a proper debate about how your organization wants to evolve in the future and what role DLT applications and technologies and platforms might play with respect to managing and safeguarding your clients' assets.

5

takeaways
for the sector

1. DLT can provide a secure, distributed and immutable record of ownership and value
2. DLT platforms can greatly improve cost efficiency and flexibility around data management
3. DLT will quickly become embedded into many asset manager's core systems
4. The adoption of DLT technologies will create some disintermediation in the sector
5. Participants will need to rethink their value proposition and business models.



Realizing digital — Learning from leaders

January 2017

Developed with Aite Group, one of the world's leading independent research firms, this report identifies how the leaders in the market are winning competitive advantage from their digital investments. It provides insights from one-on-one interviews with leading managers, and it offers practical tips and actionable advice for delivering wealth management in the digital era.



Securing the chain

May 2017

In *Securing the chain*, we examine two recent high profile blockchain incidents in which the attackers exploited security vulnerabilities while the blockchain networks and their underlying infrastructure continued to function as intended. Additionally, we provide a blockchain security and risk framework based on leading practices to enable a critical line of questioning to ensure your blockchain implementations are secure and resilient.



Blockchain accelerates insurance transformation

January 2017

This report provides an overview of how blockchain can be applied to the insurance sector. We offer insight into how blockchain technologies will impact key activities across the operational ecosystem and identify areas of change for these activities throughout the enterprise. The report also features practical actions insurers and reinsurers can take now to prepare for, and get the most value from, the disruption ahead.



Transformative change — How innovation and technology are shaping an industry

October 2016

The KPMG/MFA/AIMA global hedge fund survey investigated how managers are planning to use technology in the next 5 years. Are they planning to build, buy or outsource technology? Are they considering investing in predictive analytics, robo trading and/or artificial intelligence to improve their front office capabilities? How are they addressing their cybersecurity needs?



Consensus — Immutable agreement for the Internet of value

September 2016

Some of the world's largest banks and technology firms have begun investing large resources into pioneering the use of blockchain technology in recent years. With potential applications from establishing digital identities through to automating traditionally paper intensive processes like trade finance, blockchain is widely viewed as the most disruptive technology to emerge since the Internet. This report outlines the efforts so far to pioneer this form of distributed ledger technology.



Contacts

Tom Brown

Global Head of Asset Management

KPMG International
tom.brown@kpmg.co.uk

Said Fihri

Associate Partner — Head of Fund Distribution Services and Head of Digital Ledger Services

KPMG in Luxembourg
said.fihri@kpmg.lu

Eamonn Maguire

Global Financial Services and North America Lead Digital Ledger Services

KPMG in the US
emaguire@kpmg.com

Wei Keat Ng

Global COO Digital Ledger Services

KPMG International
wei.keat.ng@kpmg.co.uk

UK

Chris Mills

KPMG in the UK
chris.mills@kpmg.co.uk

Netherlands

Dennis de Vries

KPMG in the Netherlands
devries.dennis@kpmg.nl

Germany

Sven Korschinowski

KPMG in Germany
skorschinowski@kpmg.com

Singapore

Jan Reinmueller

KPMG in Singapore
jreinmueller@kpmg.com.sg

Australia

Laszlo Peter

KPMG in Australia
laszlopeter@kpmg.com.au

kpmg.com

kpmg.com/socialmedia



The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavor to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

© 2017 KPMG International Cooperative ("KPMG International"), a Swiss entity. Member firms of the KPMG network of independent firms are affiliated with KPMG International. KPMG International provides no client services. No member firm has any authority to obligate or bind KPMG International or any other member firm vis-à-vis third parties, nor does KPMG International have any such authority to obligate or bind any member firm. All rights reserved.

The KPMG name and logo are registered trademarks or trademarks of KPMG International.

Designed by Evalueserve.

Publication name: Getting practical

Publication number: 134431-G

Publication date: June 2017