



DataTech: Optimizing Data and Technology Innovation in Fund Servicing

March 2018



Executive Summary

At Confluence we have a strategic vision to instantaneously transform data into knowledge and deliver it to the world. Over the past decade we've seen this vision become a reality – prompted in large part by a regulatory focus on managing systemic risk following the Financial Crisis of 2008 and the resulting market downturn. The asset management industry is in the midst of a major evolution that we at Confluence are calling “DataTech”.

Rooted in optimizing the value of structured data and technology innovation, DataTech is a digital movement that is transforming the post-trade asset management operational ecosystem – starting with regulatory reporting and extending to financial, statutory and performance reporting, and investor communications.

This whitepaper explores the evolution of DataTech – where the journey began, what's driving it and how we expect it to transform our industry. As a company whose vision is synonymous with DataTech, Confluence is committed to executing on a strategic roadmap to help our clients reach the ultimate DataTech destination.

The DataTech Journey in Asset Management Defined

Since the Credit Crisis of 2007 and resulting market downturn, asset managers and their servicing agents have faced a plethora of challenges that have altered how they operate. Rewind ten years to the pre-crisis era, and it's clear that a lot has changed. Gone is the world where static human disclosures and documents are considered good enough to satisfy regulatory objectives. Instead, the post-crisis extension of focus from investor protection to systemic risk created a regulatory appetite for data and data analysis. The spotlight on systemic risk has led to a string of intensive data-centric regulatory mandates that require machine-readable output.

As the industry responded over time to regulatory filings like Form N-MFP, AIFMD Annex IV, Form PF, Form CPO-PQR and Solvency II, individual technology solutions emerged. And, just as regulatory fatigue had become the norm, U.S. mutual funds braced for the onerous rollout of Form N-PORT. Recognizing the enormous overlap of data requirements across multiple forms, the vision for a 'RegTech' platform emerged – one platform that could facilitate the reuse of data across multiple forms and provide the flexibility to deal with new regulations and constant changes to existing ones.

Today, RegTech is paving the way for a new era of fund servicing – DataTech. Building on the value RegTech delivers by leveraging the same data across multiple outputs, DataTech will extend beyond regulatory reporting to impact the entire post-trade reporting ecosystem. Financial reporting, statutory reporting, investor communications and marketing will be the beneficiaries of a new way of approaching post-trade reporting: begin with the data, input/aggregate it from multiple sources, validate it once, adjust it once, approve it once and reuse the business result multiple times. And all of this happens in a Cloud environment to encourage collaboration, provide agility and reduce the cost of ownership.

And the DataTech journey won't end there. Confluence believes that DataTech will continue to evolve rapidly over the next 12 to 24 months. We envision DataTech facilitating the delivery of standardized data and using it to leverage technology innovations like advanced analytics, artificial intelligence, machine learning and robotics, all of which will be game changing in a world of digital-on-demand and an Amazon-like experience in back-office operations.

REGULATORY ABBREVIATIONS & ACRONYMS

AIFMD – Alternative Investment Fund Managers Directive

BCL – The Banque centrale du Luxembourg

CBI – Central Bank of Ireland

Dodd-Frank – Dodd-Frank Wall Street Reform and Consumer Protection Act

ECB – European Central Bank

EMIR – European Market Infrastructure Regulation

MMIF – Money Market and Investment Funds Return

PRIIPs – Packaged Retail and Insurance-based Investment Products Regulation

DataTech: A Strategic Mindset

The first thought when introduced to the term “DataTech” may be to equate it to initiatives that also include the word “data”, like “enterprise data management” or “data warehousing”. Unlike those initiatives, DataTech is not data for the sake of data; it is not merely a central store of data to be used elsewhere, and it is not a prerequisite completed by IT before the business team adds value.

Rather, DataTech begins with a strategic mindset that requires asset managers to think about post-trade reporting problems differently. Rather than focusing on the deliverable first, DataTech is focused on the data first. Data, not line items on a report, is what the business team adjusts, reviews and approves. Documents are a byproduct of the process, a push-of-a-button exercise completed after the real work is done.

Structured data is at the core of DataTech – data that can be standardized and normalized. Data that can be read and analyzed by computers. Unlike unstructured data that is typically text heavy and not associated with a data model, structured data is easily “digitized” and optimized to take advantage of data reuse opportunities and technology innovation, such as artificial intelligence and machine learning.

As older forms of automation like straight-through processing have been squeezed dry of any value and as investors become accustomed to a high level of technological sophistication in their personal lives, DataTech delivers on the constant need to drive down costs, while meeting the new, post-crisis desire to shift resources towards growth and allowing the asset management industry to keep pace with consumer expectations.

A DataTech mindset lets the machines do what they do best, leaving your team to do the higher-order, value-added activities such as trend and process analysis, ad hoc analysis and problem resolution.

The Transformation: Document-Driven to Data-driven Processes

In practice, DataTech is an evolutionary transformation defined by optimizing data and incremental changes to technology to increase the value of your processes and people.

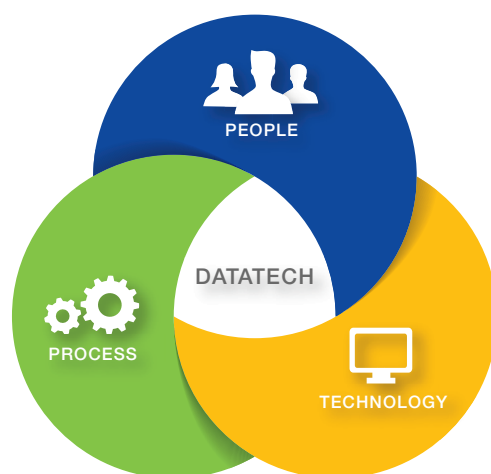
Moving to a data-driven operating model requires taking a holistic approach to people, technology and processes. The real value in adopting new technology is how it allows for process improvement – opportunities to reuse data, collaborate among external parties and adopt an exception-based review process. Moreover, it provides the transformative opportunity to make a shift from a document-driven process to a data-driven process – one where peoples’ tasks and schedules revolve around reviewing, evaluating, analyzing and modifying data rather than producing a deliverable.

Once the data work is complete, the data can be used to produce the document or file. In fact, the data can be used to produce any number of different deliverables, in any number of formats. The final PDF or filing is no longer a store of data. The same data is used to create multiple documents or filings like a financial statement or Form CPO-PQR and can be transformed into multiple file formats like XBRL or HTML, and can then be reported in multiple languages. A data-driven operating model creates the potential for vastly superior processes by eliminating redundant work, providing greater productivity and worker satisfaction.

DataTech leverages the benefits of structured data and innovation and paves the way for digitalization of back-office operations.

The emergence of DataTech as a primary value wasn’t obvious, nor was it immediate. It took time for both the critical needs and the enabling technologies to develop to where they are today.

The Three Elements of Transformation



DataTech Evolution: Past, Present and Future

The Pre-Crisis Era: Prior to 2007

Characterized by a focus on investor protection, in the years prior to the 2008 market downturn, regulatory scrutiny had begun to intensify. The emphasis at the time was on additional disclosure – more of it and delivered more frequently. The typical operational response was manual and resource intensive. Inefficient back offices struggled with lack of scalability and control.

Protect the Investor: More Disclosure, More Frequently

On the heels of the Enron scandal and the resulting Sarbanes Oxley Act of 2002, regulators were keenly focused on investor protection. In addition to annual and interim reports, U.S. mutual fund companies were also required to publish quarterly holdings data more frequently through Form N-Q, and funds were required to include a variety of new disclosures in their reports to shareholders.

Operational Response: Tactical and Resource Intensive

The additional disclosures and greater reporting frequency were a daunting undertaking. The response was tactical and resource intensive. Data was still largely managed in spreadsheets, manual report preparation processes were error prone and typesetters added both time and risk to lengthy production cycles.

Operationally, the fund administration back office struggled with scalability issues, inefficiency and lack of control. Process proliferation was the norm as the same data was collected and validated multiple times to produce the various documents and disclosures required to satisfy the regulators' desire to protect the investor.



The Crisis Era: 2007 to 2009 and Beyond

Characterized by a shift in focus from investor protection to analyzing systemic risk. Additional disclosure was no longer enough – regulators wanted to conduct their own in-depth analysis of risk exposure. Attempting to tackle the challenge with traditional operating models and disparate software solutions, asset managers and fund servicers found themselves dealing with extreme regulatory fatigue.

Shift in Focus: Investor Protection to Systemic Risk

The worldwide financial crisis that began in 2007 was the impetus for fundamental change as the regulatory oversight focus on investor protection expanded to include systemic risk.

In 2010, Money Market Reform dramatically changed the frequency, content and format of U.S. money funds holdings reporting requirements. Prompted by some money funds ‘breaking the buck’ or coming close to it, it required fund and portfolio holdings information to be delivered to the SEC via the new XML-based Form N-MFP and to complete reporting within five business days of every month end.

For fund administrators, the accelerated reporting frequency, incredibly short deadline and addition of XML-based reporting presented major compliance challenges.

Yet, the crescendo of regulations had just begun.

Based on new authority to regulate private fund advisors granted by the Dodd-Frank Act, Form PF went into effect in 2012. Similar to Form N-MFP for money funds, Form PF provides information on portfolios to the SEC for systemic risk analysis of private funds.

Then came the commodity pool equivalent of Form PF and Form N-MFP, Form CPO-PQR. Form PF and Form CPO-PQR gave Europe its first, albeit fringe, taste of the new systemic risk reporting.

As the post-crisis era unfolded, the regulatory appetite for systemic risk data intensified. To reduce the systemic counterparty and operational risk, and to help prevent future financial system collapse, EMIR came into effect in the EU in 2013. It requires, among other items, that funds report derivative trading information on a T+1 basis. Then in December of 2014, AIFMD Annex IV became effective. It introduced governance of all non-UCITS funds with a wide reach that included transparency, risk management, remuneration and liquidity rules.

The financial crisis in the U.S. wasn’t the only event catching the attention of regulators at the time. The financial markets in Europe were quite volatile even beyond mortgage-backed securities, prompting market monitoring activities by the ECB and leading to the introduction of reporting like individual security-by-security reporting required by the BCL and the evolution of OFI1 to MMIF required by the CBI.

Whatever the cause, the response from regulators and the impact to the asset-servicing back office was dauntingly the same.

Operational Response: Tactical and Resource Intensive

Reeling from the shock of the market downturn and the need to take on the new systemic risk data requirements and machine-readable reporting formats, the operational response remained status quo – point solutions, old-style automation, deliverable-focused processes and additional resources. New challenges, same response. While individual regulatory reporting software solutions were now available to help automate processing and report delivery, data collection, validation and calculation processes remained redundant and disparate.

The Post-Crisis Era (aka RegTech): 2015 to 2017

Characterized by a continued focus on disclosing systemic risk and regulatory fatigue, the post-crisis era was the tipping point. Saddled with multiple regulatory obligations, asset managers and their service providers paused to reflect on their responses to the challenges of the past 3 to 5 years and the future of regulatory reporting and data reuse. Upon reflection, the inefficiencies of solving individual regulatory mandates with disparate technology solutions was evident.

RegTech: Strategic, Data-Driven Transformation of Regulatory Reporting

In Europe, the focus on regulatory systemic risk reporting extended to asset managers servicing the insurance industry with introduction of Solvency II in 2016. Additional investor disclosure from European regulators added to the operational burden as the industry prepared for the PRIIPs KID to come into force in January of 2018. PRIIPs KID impacts both packaged retail and insurance-based products and is designed to help investors better understand and compare the key features, risk, rewards and costs of different PRIIPs through access to a short and consumer-friendly document.

In the U.S., on the heels of Form N-MFP, Form PF, Form CPO-PQR and AIFMD came the game-changing form, Form N-PORT, mandated for compliance in 2018. Impacting about 12,000 U.S. mutual funds, Form N-PORT more than doubles all of the prior U.S. systemic risk reporting. It involves more funds than Form N-MFP, Form PF and Form CPO-PQR combined and requires monthly reporting, rather than quarterly or annually like the others.

Operational Response: Strategic, Automated and Transformational

Moving beyond the financial crisis, though still mired in regulatory fatigue, the asset management industry set its sights on returning to growth. Tired of just keeping their heads above water and sensing that reporting burdens would only continue to grow, asset managers and their service providers were ready to make an investment in that growth.

Amidst the increased regulatory pressures, many buy-side firms turned to a new breed of FinTech solutions, collectively known as RegTech, to stay ahead of regulatory compliance requirements and improve efficiency and cost effectiveness in the back office.

Rather than simply tacking on new single-point applications to an outdated and overgrown platform and relying on legacy straight-through processing to produce results, asset managers are adopting new and innovative ways to solve regulatory and business challenges.

With the EU's cross jurisdictional reporting framework and country-specific legislations and reporting requirements, data and reporting is even more burdensome, making the ability to reuse data across multiple reports paramount.

In response to a question in Confluence's 2017 industry trends survey, more than 8 in 10 (83%) asset management professionals identified at least one factor that will cause fundamental change in their operating models over the next 24 months. Respondents named Regulatory Change (60%) and Technology Innovation (49%) as the top driving factors in this transformation.

The DataTech Era: 2018 and Beyond

The same impulse that prompted the industry to embrace RegTech and the value it delivers by leveraging data across a multitude of regulatory forms is expected to impact the broader fund servicing ecosystem. The result will be a "DataTech" movement in the fund-servicing back office where the same data is used to produce a variety of not only regulatory but also financial, marketing and statutory reports, eliminating process proliferation and redundant data processing. This movement will be a strategic step toward real digitalization in the fund servicing industry.

RegTech Transformation Extends to Broader Post-Trade Ecosystem

As the U.S. fund industry struggles to cope with the systemic risk reporting challenge presented by Form N-PORT, Europe is continuing full-steam ahead as ESMA centralizes requirements in a bid to strengthen capital markets, adding reporting for money market funds in 2019, and most certainly updates to both AIFMD and UCITS directives on the horizon.

Beyond regulatory reporting, asset managers and their third-party fund servicers are focused on two priorities, freeing up resources for growth while achieving the next level of cost control. They are looking for a strategic response, one that is automated, efficient and transformative. The value of a data-driven approach has been proven by RegTech. In 2018 and beyond, the industry will extend the value proposition of RegTech beyond regulatory reporting to all post-trade financial, statutory and marketing reporting.

Operational Response: Strategic Across the Post-Trade Ecosystem

Phase I: One SaaS-Based and Data-Driven Platform

RegTech was the inspiration. It was designed to handle all of the additional regulatory reporting from the past eight years, plus the added burden of Form N-PORT, PRIIPs and other pending European regulations. But DataTech is more – it is a strategic, transformative operating mindset designed and optimized around shared data across the fund servicing ecosystem. It will enable operations teams to eliminate redundancy by processing the data once and then exporting it in as many formats as needed from one data-driven, SaaS-based platform. And it will do all of this by moving the process from the deliverable to the data.

Phase II: Imagining Where DataTech Can Take Us

Fund companies will gain the full-fledged benefits of digitalization – from digital-on-demand to a consumer-like digital experience. Imagine a post-trade DataTech experience that offers:

Seamless Data Flow – Secure, API-driven connectivity will enable data to flow where it needs to, without human involvement.

Automated Processing – Much like an alarm clock that gets set once and then just works, DataTech capabilities will allow you to set up specific sequencing or event-driven operations. The processes will run constantly, checking for various conditions in the data that warrant responses.

Machine Intelligence – Unlike an alarm clock that stays the same each day, DataTech solutions will be able to adapt to changing conditions and suggest new or updated responses. For instance, if a certain item is manually updated on a regulatory report the same way each month, the system may detect this condition and suggest an alternate data source or aggregation method to prevent manual intervention in the future. Or, if a fund changes its primary investment strategy, the system may suggest a list of disclosures to be filed based on filings of similar funds.

Long Memory – Essentially an enabler of artificial system intelligence, the accumulation of data over time allows the system to spot trends – and thus trend changes and outliers. With DataTech, the system gets smarter as more data is processed. DataTech also allows users to view and query historical data, as human intelligence still complements machine intelligence in discovering patterns and setting policy.

Blended Architectures – DataTech is architecture agnostic, making it compatible with both centralized and distributed architectures. While legacy data may reside in centralized systems and new data may be sourced via distributed ledgers, DataTech systems will connect and blend the data as required for the various deliverables.

Consumer-Like Digital Experience – Whether using a voice-activated device to automatically place an Amazon order or an app to hitch a ride in an Uber, a consumer doesn't typically think about the details of the amazing underlying technology capabilities. But that natural user experience is what's memorable and powerful. DataTech will usher in a similar user experience for critical post-trade reporting enterprise functions.

DataTech and the Cloud

In the DataTech Era, cloud technologies will be paramount in enabling asset managers and asset servicers to meet their dual objective of positioning their firms for growth while taking cost control to new levels.

Cloud-based solutions:

Enable Agility – The main benefit of the Cloud is the ease with which software applications can be updated and deployed. The Cloud allows firms to drastically reduce the time needed to prepare for new regulations or changes to old ones.

Encourage Collaboration – Cloud solutions make it easier and more efficient for multiple people from multiple entities to collaborate on a single process. By dramatically reducing the need to coordinate between all the various people, the process is streamlined.

Reduce Cost of Ownership – Cloud-based SaaS is a case of pay-for-what-you-use almost on a day-to-day basis, which is especially valuable given the dramatic spikes in activity that accompany back-office reporting. As well, the cost of updating SaaS solutions is nearly nonexistent for the end user. There is no need to coordinate and haggle with your IT team for the resources required to use the latest and greatest.

Synapse® - Aggregate, Transform, Reuse and Refresh Your Data

At Confluence, we're not looking to replace our clients' enterprise data management strategy, we are looking to extend and enhance it. With Synapse, our first-of-its-kind proprietary data engine, we give clients the power to aggregate their post-trade data from multiple sources, process it at the data level once and then reuse it across multiple outputs.

Synapse uses a powerful and unique data model that standardizes and normalizes structured data, enabling asset managers and service providers to benefit from:

Data Reuse – Unlike traditional systems that input data for one specific purpose, Synapse enables reuse of data across a variety of outputs, thereby empowering clients to solve their post-trade filing and reporting needs through one platform. The result is speed, accuracy and efficiency.

Flexible Inputs, Flexible Outputs – Designed to input data from multiple sources, then aggregate and transform it into multiple outputs, Synapse offers a high degree of flexibility for both standard and ad-hoc reporting.

Scalability – As a SaaS-based application, Synapse has the flexibility to rapidly respond to regulatory changes and additions and scale with increasing client demands.

Supplier Quality Feedback – With document-driven processes, final edits made to documents aren't likely to be communicated back to the source of the data. With Synapse, on the other hand, reconciliation takes place at the data level, not the document level. document level.



DataTech Process Design: Conceptual Example and Timeline

Embracing DataTech will shift project plans in a way that will allow asset managers and service providers to get two, three or even four deliverables for the price of one. Think of the hypothetical scenario of a U.S. mutual fund that needs to prepare Form N-PORT, the Morningstar APT, Form N-PORT Part F and Form CPO-PQR all for the same month-end reporting cycle. Rather than create a project plan for each deliverable – when it is to be created, validated, reviewed, approved and finalized – DataTech will permit users to create a plan to do all those things once to the data, as shown in the graphic below. Because the data is largely the same in all four cases, a lot of redundant activity can be eliminated. To get to the deliverables, use the results of the slimmed-down data work to output each of the four deliverables with the push of a button.

Data-Driven Operating Model Sample Monthly Plan

Business Days	2	Load holding, trial balance, transaction, and TA data
	3	Update with portfolio analytics, liquidity risk and market data files
	3	Update with fair value level files
	5	Update with securities lending and collateral information
	5	Update with counterparty data
	10	Manual portfolio adjustments complete
	15	Manual trial balance adjustments complete
	19	All exceptions cleared
	20	e-file XML to SEC, email Excel to Morningstar, load XML to EasyFile, e-file HTML Part F to SEC

DATATECH EVOLUTION

	PRE-CRISIS ERA Pre-2007	CRISIS ERA 2007 to 2009 and beyond	POST-CRISIS ERA 2015 to 2017 aka RegTech	DATATECH ERA 2018 and beyond
Operating Challenges	<ul style="list-style-type: none">· Scalability· Efficiency· Control· Tactical, resource-intensive response	<ul style="list-style-type: none">· New challenges, same response· Regulatory fatigue· Tactical, resource-intensive response	Strategic, automated, efficient transformation of regulatory reporting	<ul style="list-style-type: none">· Next-level cost control· Free up resources for growth· Strategic, automated, efficient transformation· Extend beyond regulatory reporting to all post-trade financial, statutory, and marketing reporting
Characteristics	<ul style="list-style-type: none">· Human-viewable output· Focus on investor protection	<ul style="list-style-type: none">· Machine-readable output· Focus on systemic risk	<ul style="list-style-type: none">· Machine-readable output· Focus on systemic risk	<ul style="list-style-type: none">· Eliminate importance of output format· Leverage data, data reuse across the ecosystem
Operating Model	<p>Traditional</p> <p>People Redundant work</p> <p>Process Ruler and eyeball review</p> <p>Technology On-premise install software</p>	<p>Traditional</p> <p>People Redundant work</p> <p>Process Ruler and eyeball review</p> <p>Technology On-premise install software</p>	<p>Evolutionary for Regulatory Reporting</p> <p>People Data reuse, task reuse</p> <p>Process Exception-based</p> <p>Technology</p> <ul style="list-style-type: none">· Saas-based· Data-driven regulatory platform	<p>Evolutionary for all Reporting</p> <p>People Enterprise-wide analytical value</p> <p>Process</p> <ul style="list-style-type: none">· Exception-based· Fully analytical <p>Technology</p> <ul style="list-style-type: none">· Advanced analytics· Artificial intelligence· Robotics· Digital on Demand· Amazon-like Experience
<div>DOCUMENT-CENTRIC</div> <div></div> <div>DATA-CENTRIC</div>				