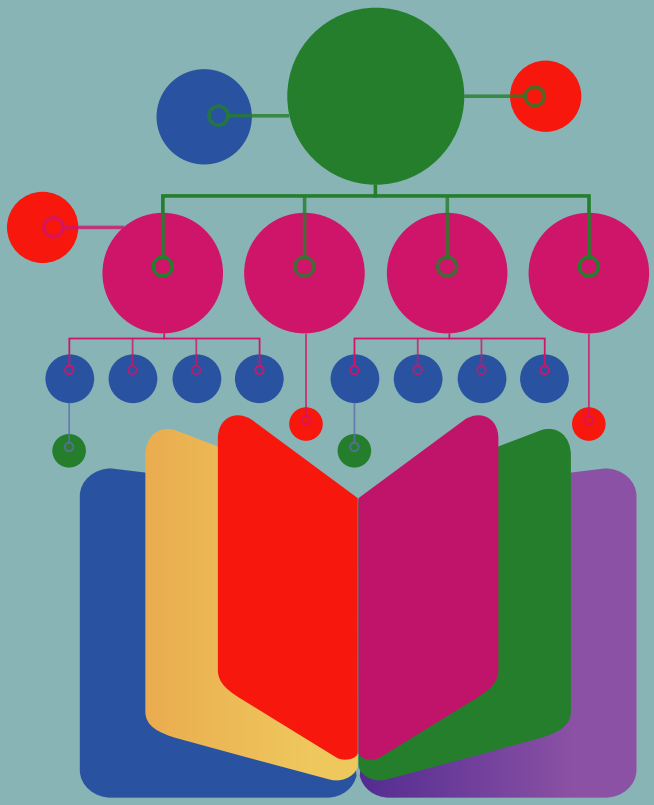
DataManagement Insight | Handbook

Entity Data Management Handbook 2021

Seventh Edition



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Introduction

Innovative entity data management solutions respond to rising financial crime

Money laundering is a problem for capital markets. It costs billions of dollars in fines every year and causes reputational damage. As the sums of money involved in financial crime continue to increase, it also weighs heavily on national, regional and global economies.

Similarly, breaches of Know your Customer (KYC) and client onboarding rules and regulations have a financial and reputational impact on capital markets participants. The whole exacerbated by volatile markets and the new norm of working from home ushered in by the coronavirus pandemic.

Achieving anti-money laundering (AML), KYC and client onboarding compliance is a huge challenge for financial institutions, but it can be matched by increasingly innovative and powerful entity data management solutions. Based on accurate, timely and maintained entity data, entity data management can identify parties to transactions, raise alerts, and weed out bad actors. It can also be used for proactive initiatives such as improving customer experience and identifying business opportunities.

The criticality of accurate entity data and effective entity data management is nowhere more apparent than in the fact that this is A-Team Group's seventh edition of the Entity Data Management Handbook.

Our 2021 publication provides the latest information on entity data, commercial use cases taking advantage of the data, and regulatory obligations requiring the data. It also considers innovative technologies, tools and services that can help you improve entity data quality, and outlines the key elements of a successful entity data management strategy.

Thank you to Bureau van Dijk and Diligencia for sponsoring the handbook, and we hope you find it useful as you tackle the challenges of AML, KYC and client onboarding.

To keep up with the latest developments in entity data management visit our website at **www.a-teaminsight.com**.

Angela Wilbraham
Chief Executive Officer
A-Team Group

Foreword

Why good entity data matters now

Andrew Bockelman, General Manager, Data Services, Moody's Analytics

Few of us will forget that feeling of uncertainty that pervaded the early months of 2020. As we heard about a mysterious new virus spreading around the world, we were left with countless questions. What will happen to my company? What will happen to the economy? How long will this continue?

For those of us who manage data, the uncertainties of 2020 reminded us of our important role in bringing facts and truth to otherwise indeterminate situations. Now, as we emerge from the pandemic, we remain conscious that good data matters more than ever.

The post-pandemic world brings new opportunities and risks. 2021 will be a crucial year when having useful and usable data will make the difference between finding new opportunities and falling foul of risk. The pandemic amplified trends that were already discernible before changes ensued. Many nations turned inwards, but now a resumption of outward focus is rekindling geopolitical transformation.

Global trade patterns are shifting, as is consumer behaviour. As these patterns change, so too does creditworthiness across geographies, sectors and individual businesses. Financial crime, from fraud to money laundering, remains a persistent concern, as financial institutions and regulators scramble to implement solutions during a time of increased digital commerce.

Regulators, meanwhile, are responding to these shifts with ever more harmonised legislation, from sanctions to anti-money laundering initiatives and inter-governmental tax cooperation – all at an accelerated pace.

With change on so many fronts, decision makers need to take an integrated approach to risk assessment. Knowing who you trade with – where you can do more, where you should do less – is key. This calls for impeccable entity data.

Integrated risk assessment is about concurrently evaluating all upside and downside factors – not just the usual financial considerations, but all considerations that can make an entity a desirable or undesirable trade partner. Entity data lies at the core of this understanding, and companies

Foreword

around the world are seeing real value from investing in high-quality reference data.

Businesses of all sizes are studying their suppliers and even their suppliers' suppliers, aiming to create resilience within supply chains. If they're to spot the right partners for the long haul, they'll need extensive entity data and tools to assess shareholder and inter-company links, creditworthiness, and exposure to cashflows potentially tainted by corruption or criminality.

Environmental, social, and governance (ESG) factors are also worth recognising. Good ESG practice can propel growth and mitigate reputational risk. As ESG transparency grows, organisations will seek better visibility of their own profiles as well as others' – whether that's guilt by association with labour abuses in the upstream or downstream value chain, or capital that is tied up in carbon-heavy holdings. There's simply no excuse for not knowing.

On the regulatory front, high-quality entity data is empowering both regulators and financial institutions to further automate KYC and AML processes. With better information around identities, ownership, and historical behaviour coupled with advances in artificial intelligence, financial institutions can spend more time pursuing legitimate opportunities and less time dealing with problem cases.

As business models stabilise after the pandemic, investment opportunities will become clear to those with the most immediate information at their fingertips. Analysts who have fast access to detailed company financials and real-time event-driven data will be a step ahead.

Transparency will also be fundamental to forging collaborative growth opportunities in our evolving global economy. Organisations will want to share information with supply chain partners, R&D affiliates, distribution networks, and government institutions. These collaborations will only be possible if they are based on a thorough understanding of one another.

Successful organisations of 2021 will be those that embrace an integrated approach of this kind, spanning every aspect of risk and opportunity, and supported by the most reliable and quickly available entity data.

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Entity Data

The use of accurate, complete and timely entity data can be the difference between regulatory compliance and penalties for non-compliance, doing business with the right or wrong customers, and complying with sanctions and Politically Exposed Persons (PEPs) requirements or breaching these and incurring eye-watering financial fines and reputational damage. The whole made increasingly complex by the implementation of a post-Brexit UK regulatory regime that leaves many financial institutions facing dual reporting to both EU and UK authorities.

The criticality of entity data became apparent during the 2008 financial crisis, when neither financial institutions nor regulators had access to the data they needed to identify parties to transactions and aggregate counterparty risk exposure in a timely and meaningful manner.

When Lehman Brothers collapsed in September 2008 and the aftershock ripped through financial markets, the writing was on the wall – entity data is central to the save and smooth operation of global capital markets.

While the Lehman Brothers disaster brought entity data into sharp focus as a means of identifying clients, counterparties and issuers of securities, use cases of the data have extended beyond regulation to development and digital transformation, bringing with them issues around entity data management, data resolution and data quality.

The financial crisis also led to the creation of the Legal Entity Identifier (LEI), an open, free and standard entity identifier that is issued globally under the auspices of the Global LEI Foundation (GLEIF), should be adopted by organisations involved in financial transactions, and is often a starting point for entity data projects.

Sourcing entity data

While the LEI is freely available and has been continually augmented since the GLEIF became the operational arm of the Regulatory Oversight Committee (ROC) of the identifier in June 2014, sourcing entity, hierarchy and ultimate beneficial ownership data that gives firms a clear understanding of their customers and ensures regulatory compliance can be difficult. This is particularly the case where private companies are concerned. Unlike publicly listed companies, private companies are not required to disclose significant investor holdings.

A large amount of entity data resides within financial institutions as a result of working with customers, counterparties and security issuers. Corralling the data required for regulatory compliance into meaningful datasets that are continuously updated as entities change has, however, been a challenge for financial institutions.

Entity Data

This has led them to use the LEI to improve entity resolution as well as data vendors to source clean and validated entity data sets, or to plug gaps in house.

Specialist entity data vendors are important in helping firms source entity, hierarchy and ultimate beneficial ownership data of private companies. This can be complex and inconsistent, with regulations defining beneficial ownership at different thresholds. For example, the sixth Anti-Money Laundering Directive (AMLD6), due to come into force in the EU in June 2021 – post Brexit, the UK will not transpose AMLD6 into its AML framework as it already complies with many of the rules in the directive – and US rules set down by the Financial Crimes Enforcement Network (FinCEN), define beneficial ownership as ownership of 25% or more of a legal entity. In contrast, the US Foreign Account Tax Compliance Act (FATCA) pitches beneficial ownership at a 10% or larger holding in an entity.

At the extreme, and in extremely sensitive or volatile situations, companies may need access to ownership data at thresholds in single figure percentages, a requirement that can be met by researchers at specialist hierarchy and beneficial ownership data providers.

Data enrichment

Entity data includes reference data that uniquely identifies an entity. It is key to regulatory compliance, but can also be enriched to discover more about a particular organisation. Content that can be used to enrich entity data includes detailed financials, financial strength data and other risk metrics, extensive corporate structures, and sales and marketing intelligence.

Looking at enrichment from a different angle, the value of entity data can be extended by linking it to other datasets. For example, while the LEI provides a database of unique entity identifiers that can be used to cross-reference other vendor and proprietary identifiers, and hierarchy and beneficial ownership data that can provide essential knowledge about corporate relationships, more and different datasets are needed to complete an entity-centric view across an organisation.

These datasets could include valuations and evaluated pricing, fundamental data, ratings data and credit analytics, all adding value to the LEI and drawing a fuller picture of each entity across an organisation. While the LEI has no means of linking directly to added value datasets, mapping it to other vendor and proprietary entity identifiers with links to the datasets can provide the building blocks for an entity-centric view of activity and a step up in risk management, customer service and operational efficiency.

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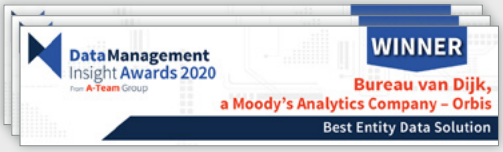

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Entity Data

Hierarchy and ultimate beneficial ownership data

Hierarchy data is about the relationships between legal entities that indicate ownership, control, or influence of one entity over another. It was initially perceived post 2008 as important to risk management, but as new regulations emerged it became essential to regulatory reporting, risk aggregation and capital adequacy. Now, many financial institutions use hierarchy data as a means to understand supplier business relationships, analyse revenue strategy, and assess cross-border client relationships.

An ultimate beneficial owner (UBO) is a 'top of the tree' individual or entity that benefits from a company. A UBO usually owns or controls over 25% of company shares (as above) and has the right to exercise significant control over the company. Financial institutions need to identify UBOs to understand who they are doing business with, as well as to comply with AML and KYC requirements.

Entity data vendors provide hierarchy and UBO data for entities locally and globally, whether it is relatively easy or extremely difficult to source. They maintain data on millions of legal entities and provide options from generic to bespoke data services.

GLEIF has added hierarchical data to LEIs in the database.

Level 1 reference data that must be supplied for each LEI includes business card and other information that provides the answer to the question of 'who is who':

- The official name of the legal entity as recorded in official registers
- The registered address of the legal entity
- The country of formation
- The codes for the representation of names of countries and their subdivisions
- The date of the first LEI assignment, the date of the last update of the LEI information, and the date of expiry, if applicable.

Level 2 data includes:

- Direct accounting consolidating parent
- Ultimate accounting consolidating parent

Legal entities that have or acquire an LEI must report this data, which provides hierarchy data to answer the question of 'who owns whom'. It allows identification of the direct and ultimate parents of a legal entity and vice versa, so that entities owned by individual companies or the parents of entities can be researched. GLEIF offers a Global LEI Index that allows corporate dots to be connected globally.

Entity data providers

Entity data providers include large market data vendors, niche firms dedicated to entity data, business registries and LEI issuers within the

Entity Data

global LEI system. Whatever their size and scope, the role of these providers in highly regulated markets is to continually improve the granularity, accuracy, consistency, timeliness and quality of data they provide to support customers' regulatory compliance programmes, business initiatives and efforts to cut down financial crime.

To create an entity record, vendor research teams typically collect entity data from primary sources, including registration documents, regulatory filings, exchange announcements, annual reports and prospectuses. The data is verified and automatically cleansed to identify and correct any inaccurate or incomplete data, and to eradicate typographical errors.

The data is loaded into an entity database and constantly monitored and updated when it is affected by corporate actions or other events to ensure provision of complete and accurate data. It is also linked back to primary sources to provide an audit trail that helps firms meet regulatory transparency requirements, including the ability to show exactly how entity data has been sourced and changed.

Depending on customer requirements, data vendors can map LEIs, proprietary entity identifiers and vendor identifiers, reconcile underlying data and deliver an entity data master that provides a single, accurate and consistent view of entities. They can also automate and aggregate data to create datasets required for regulatory reporting, and supply entity data hierarchies including parent and ultimate beneficial ownership information that can be used in risk management systems to provide a better understanding of company relationships and risk exposure.

There are several options for entity data access and delivery including data feeds, which usually incorporate LEIs, web-based application programming interfaces (APIs) that pull vendor entity data directly into in-house or third-party applications, and multi-tenanted entity data utilities that offer a one-to-many model to give users access to data that is processed once for the benefit of many utility users. Other options include vendor provision of online portals to entity data that allow users to download data associated with particular entities.

Use Cases

While regulatory use cases of entity data were first to emerge for processes such as KYC, AML and sanctions compliance, business use cases were quick to follow and continue to expand as volumes of entity data rise and new technologies are implemented to gain greater value from the data.

This section of the handbook provides a snapshot of both regulatory ad business use cases of entity data. These have different objectives, but they also have much in common, including the need for accurate, complete and timely entity data that is easily accessed, continually maintained and updated, and can be used to form a precise audit trail.

KYC and client onboarding

KYC includes client onboarding, due diligence, enhanced due diligence and ongoing entity data verification with the aim of preventing activities such as money laundering, financial fraud, identity theft and terrorist financing.

Client onboarding is the process financial institutions must complete before doing business with a client. It is an extensive process based on entity data and must comply with local KYC regulations. Historically, it was a manual data input and cross-check process, but that is no longer feasible for large organisations onboarding many clients, working in highly competitive markets, and subject to growing scrutiny by local supervisory authorities.

Automation, often including elements of machine learning and artificial intelligence (AI), is critical to the efficiency and efficacy of client onboarding, as well as to delivering business benefits such as reduced time to revenue, lower costs, client loyalty, improved client experience, identification of new products and client segments, and indicating potentially 'good' and 'bad' customers.

Anti-Money Laundering

AML is tightly coupled to KYC and is an EU directive designed to prevent use of the global financial system for money laundering and counter terrorist financing (CTF). AMLD5 improves transparency of beneficial owners of legal entities, trusts and similar legal arrangements. This is done by making EU member states' beneficial ownership registers of legal entities publicly accessible, and making registries of trusts and similar legal arrangements accessible to competent authorities, national Financial Information Units (FIUs), obliged entities in the context of their due diligence measures, and any person who can demonstrate a legitimate interest.

Use Cases

Where beneficial ownership registers are in place, KYC processes must consult them before new business relationships are made. This provides an additional level of security against bad actors, but also extends data management requirements to achieve compliance.

AMLD6, which followed AMLD5 in quick succession and must be implemented in the EU by June 2021, adds more gravity, including an updated list of predicate offences for money laundering including 22 offences that member states must criminalise, including offences such as aiding and abetting, and attempting and inciting money laundering. This is also an increase in minimum prison sentences for money laundering offences for individuals from one year to four years.

Post-Brexit, AMLD6 will not be transposed into the UK AML framework, which already includes many of the rules in the sixth directive. UK firms operating in the EU, however, will remain in scope of AMLD6 as well as local regulation, and EU firms operating in the UK will be subject to EU and UK AML regulations.

This adds complexity to compliance, requiring firms to understand all aspects of the EU and UK regulations, and implement compliance solutions including single or dual reporting processes. Depending on the efficacy of the sixth directive, the EU may see fit to introduce a seventh directive.

Sanctions screening

Client and prospect screening applications check entity data against financial sanctions, trade embargoes, politically exposed persons (PEP) lists and other watch lists to detect whether entities are suitable to do business with and, if this is not clear, raise an alert for additional checks to be made by application users.

Typically, screening and sanctions solutions are automated to match entities and sanctions, with exceptions handled manually and solution vendors working to reduce false positive outputs that detract from the focus on real sanctions issues. Vendors are also introducing machine learning and AI with a view to improving early detection of entities that are sanctioned.

Sanctions lists are made and maintained by organisations such as the US Office of Foreign Assets Control (OFAC), the United Nations (UN) and EU member states working in line with sanctions made through EU law. The lists change continually and grow rapidly, requiring screening applications to monitor

Use Cases

them closely to identify sanctioned individuals, organisations, and countries, and avoid too many false positives.

Explicit sanctions covering countries, individuals or entities are relatively easy to manage and enforce, but complexity is introduced when entities are sanctioned by extension. Under OFAC's 50% rule, a company is sanctioned by extension if owned by a sanctioned company or individual through a chain of ownership of 50% or more. These entities do not appear on any sanctions lists, but you could still be fined for trading with them.

Post-Brexit, the UK implemented its own sanctions regulation, Sanctions and Anti-Money Laundering Act 2018 (aka the Sanctions Act). Sanctions lists are published by the Office of Financial Sanctions Implementation (OFSI). Financial institutions operating in the UK and other jurisdictions, and vice versa, will have to assess which sanctions, embargo and PEP lists they must comply with.

Risk management

The criticality of accurate and timely legal entity date for risk management was highlighted by the 2008 financial crisis that brought down financial institutions due to a lack of understanding of counterparty exposure and inability to aggregate risk caused by poor and incomplete entity data.

Regulations such as Dodd-Frank, European Market Infrastructure Regulation (EMIR) and Markets in Financial Instruments Directive II (MiFID II) sought to address the problem by extending entity data management and reporting rules – in many cases insisting that the Legal Entity Identifier (LEI) is used to uniquely identify entities, mandating tighter controls, and calling for improved transparency across markets.

Firms are also working to improve data quality and linking entity and instrument data to understand exposure by industry, issuer and region. With accurate and complete entity data, and a good understanding of workflows and applications, they can benefit from improved operational risk management including a reduction in trade failures and reconciliations.

Capital adequacy

As well as using entity data to ensure regulatory compliance, financial institutions are investing in improving risk management applications. By increasing the accuracy of identification in risk aggregation and categorisation of exposures, they can reduce the levels of regulatory capital they must hold under regulations such as Solvency II, Basel III, and

Use Cases

forthcoming Fundamental Review of the Trading Book (FRTB) capital adequacy rules.

Efficient decision making

Entity data that is accurate, timely, screened for sanctions and well connected to other entity, hierarchy and beneficial ownership data is central to fast and strong decision making, whether it is about which clients a firm will and will not do business with, which existing clients offer more potential, or wider issues such as targeted marketing and sales.

Non-regulatory use cases of entity data like this, and how they are implemented, are in the hands of individual firms and are often central to business strategy.

Business development

Entity data, managed well, is a prime driver of improved customer experience, acquisition, engagement, retention, and by extension, business development. By implementing an entity data master data management solution, financial institutions can gain a 360-view of customers, giving them a clear understanding of who they are doing business with, how customers are behaving, and how best to retain clients and acquire more in adjacent sectors. They can also use the data to identify new business opportunities either with existing or prospective customers.

Data enrichment services provided by entity data vendors can extend entity records with content such as detailed financials, financial strength data and other risk metrics, extensive corporate structures, and business-to-business sales and marketing intelligence, again providing business with the power to make better decisions and identify new opportunities.

Data Quality

High quality entity data is imperative to all the data's uses cases including regulatory reporting, client onboarding and KYC, AML, sanctions screening, risk management, business development, and having a clear view of customers and counterparties – but it is not easy to achieve and sustain without the help of tools designed specifically for the purpose.

Approaches to data quality

Most entity data quality issues result from data silos and legacy systems storing and using conflicting datasets, manual data collection and management processes, and inconsistencies in entity data feeds sourced from data vendors. These problems cause data duplication, version issues, incorrect records and incomplete datasets that can lead to operational inefficiencies, poor customer service, risk exposure, and inaccurate regulatory reporting.

With so much at stake, many financial institutions have established entity data quality programmes – the GLEIF offers a similar solution for the LEI – and implemented vendor tools and services. An initial approach to improving entity data quality should start small, identify high-risk data and ensure its accuracy is sustained. The initiative can then be cascaded to cover additional levels of entity data depending on its associated risk.

Technologies and techniques

A practical approach to improving entity data quality, particularly where data is spread across silos or departments, is to implement an automated master data management solution designed to manage and deliver golden copy entity data across the organisation. This can improve data quality as well as consistency and timely access.

Useful technologies include fuzzy matching, that can identify duplicate records and merge data to create single records, and entity data diagnostics that can identify and prioritise data quality issues and be used to establish a baseline and monitoring schedule to ensure data quality is maintained at an acceptable level. Data quality metrics provide constant measures across datasets and can be used to support a continuous iteration of measurement, decision making and data remediation.

Data Quality

Artificial intelligence (AI) and machine learning (ML) techniques are increasingly being used by financial institutions to improve data quality, while natural language processing (NLP) is emerging as a means of identifying and extracting requested entity data from unstructured data in documents such as company reports and news articles.

Entity Data Management

Entity data management has developed significantly since it was widely acknowledged as being imperative to the safety of capital markets after the 2008 financial crisis. In these circumstances, regulation was an early driver of entity data management as firms responded to requirements to identify all parties to financial transactions, aggregate risk exposure to counterparties quickly and accurately, and exclude sanctioned entities from financial transactions.

While these requirements remain, most financial institutions have moved on, implementing entity data management platforms not only for regulatory compliance, but also to improve client onboarding, KYC, AML, and sanctions screening; provide a robust understanding of risk exposure; and identify potential for business development.

A strategic approach

A strategic approach to entity data management backed by strong data governance and lineage can provide firms with robust risk management, a deep understanding of entity relationships, and a platform that can not only answer questions from regulators, but also offer opportunities for cross-selling and new product development.

It can also be rolled out across an organisation, ironing out departmental differences around entity data, demonstrating the benefits of effective data management, and helping to change an organisation's culture to one that understands and enforces the importance of consistent, high quality entity data covering customers, counterparties and issuers.

Entity data management platforms

The challenges of building entity data management platforms are many and at a fundamental level include identifying entity data, pulling it together from multiple data silos, filling data gaps, and integrating internal and external data sources to create an entity data master. The data must be formatted, validated and given an identifier. It also needs to be of high quality, accessible and well maintained, allowing the entity data master to provide a single, consistent and timely view of all entities with which a financial institution is involved.

Entity Data Management

An entity data master can also help firms address operational problems such as stale data that is difficult to monitor and update when held in multiple silos, and reduce the costs of owning and managing customer and other entity data.

An entity data management platform must include an alerting capability that brings attention to potential or happening incidents such as breaches of sanctions.

Initially, financial institutions developed entity data management platforms in house, but the sheer volume of data that must be handled for regulatory purposes, such as KYC and AML, means most have migrated to vendor applications and services, or developed a hybrid build-and-buy solution. Vendor solutions include specific elements of entity data management, perhaps sanctions screening or client onboarding, as well as complete client lifecycle management platforms.

Operational entity data management

Approaches to operational entity data management vary. While the LEI has not yet gained as much traction as initially expected, mostly due to a lack of regulatory mandates, it serves well as a cross reference point for multiple proprietary and vendor entity identifiers, links entity datasets within an organisation, and is sometimes, but not always, mandated for use in transactions between companies and regulatory reporting.

With many entity identifiers including the LEI being used by financial institutions, a master entity data management approach can source and integrate LEIs, proprietary identifiers and vendor identifiers from multiple systems, map them to each other and reconcile underlying data.

When this is done, it is possible to see real benefits. Regulatory requirements for entity data can be met accurately and in a timely manner, a single version of entity data can be delivered to diverse downstream applications ensuring integrity of the data, the data can be enriched by building up entity hierarchies and relationships to discover ultimate beneficial owners, and a 360-view of customer data can be achieved.

Data management solutions

While the end game of entity data management is provision of a single, accurate, consistent and frequently updated view of every entity with which a financial institution has relationships and does business, there are a number of ways to get there. Depending on existing data management architecture and appetite for change, firms may choose to build entity data management solutions in house, but are more likely these days to

Entity Data Management

opt for vendor solutions that fit their business models. Vendor solutions include enterprise software, hosted solutions, managed services, data utilities, and web services.

Enterprise software: Vendor software solutions deployed in house or in the cloud by financial institutions to manage entity data, typically taking a master data management approach that centralises client, counterparty and issuer data.

Expected improvements from implementing enterprise software include greater operational efficiency, reduced cost and enhanced data quality and understanding.

Hosted solutions: Firms with limited IT resources or strategies to outsource non-core activities can benefit from hosted solutions that remove the burden of deploying and maintaining software in house and provide access to entity data management software that is hosted – often in the cloud – and maintained by a vendor. These solutions are based on a vendor's enterprise software and provide a dedicated instance of the software for each client, as well as the ability to configure the software to meet business needs.

Expected benefits include reduced total cost of ownership, increased speed to implementation, enhanced data quality and a lower skills requirement.

Managed services: Similar to hosted solutions, managed services are often deployed in the cloud and remove the burden of implementing and maintaining software in house, but unlike hosted solutions they are based on a central vendor managed platform that is used by many clients. Typically, a managed entity data management service will cleanse, deduplicate and validate entity data, and map vendor and industry standard entity identifiers to the client's identifier to deliver an entity master.

Expected benefits include reduced total cost of ownership, increased speed to implementation, flexibility to meet changing requirements, and enhanced data quality.

Data utilities: The aim of utilities is to ease the industry's data management burden and deliver economies of scale by consolidating non-competitive data management processes that are repeated across financial institutions.

Expected benefits of utilities match those of other managed services, including reduced total cost of ownership, increased speed to implementation, flexibility to meet changing requirements, and enhanced data quality.

Web services: Web services provide API access to vendor entity data that has been cleansed and validated. These services can be used to match

Entity Data Management

and validate entity data, populate master data management solutions, monitor and refresh data, and flow entity data directly into applications and systems.

Expected benefits of API based web services include reduced costs, increased speed to implementation, flexibility to meet changing requirements, enhanced data quality, and the ability to automate the ingestion of entity data into systems and applications.

Technologies

The criticality of entity data management has led many financial institutions to review existing systems and processes, and consider innovative technologies that can provide greater operational efficiency, faster time to market, reduced costs, improved data quality, and better customer service. These technologies include automation, machine learning, cloud, semantics and blockchain.

Automation: The automation of entity data management is essential to ensuring regulatory compliance and efficiency in a highly competitive market. Some organisations develop their own automation processes, but more opt for vendor cloud-based software-as-a-service solutions offering a combination of near real-time data management, robotic process automation and cognitive learning.

Both client onboarding and corporate actions can benefit from automation, with onboarding including entity data gathering, document checking, hierarchy building, reconciliation and other previously manual processes. Automation of corporate actions can monitor announcements such as dividends, mergers and acquisitions, and extract attributions relevant to entity data.

The benefits of process automation include time to market, improved customer service, reduced risk and operational cost, more confident regulatory compliance, data quality and transparency.

Machine learning: Machine learning allows systems to learn automatically and improve from experience without being explicitly programmed and with or without human intervention. Learning is based on algorithms that can, by way of example, detect patterns in data or apply rules to predict likely outcomes based on identified patterns, categorise data, identify previously unknown patterns and relationships, and detect unexpected behaviour.

Machine learning algorithms using fuzzy matching scores can identify which data records are most likely to be duplicates and which are not.

Applied to applications using entity data, machine learning can speed

Entity Data Management

up processes, increase accuracy and efficiency, highlight exceptions and help firms find new business opportunities.

Cloud: Adoption of private, public and hybrid cloud solutions for financial services applications includes the move of entity data management into the cloud. Cloud solutions offer the ability to scale in line with data volumes and run test or pilot projects without the need for capital investment.

Cloud technology offers the benefits of cost savings, rapid deployment, ability to scale, flexibility to meet changing requirements, mobility and, in many cases, improved security.

Semantics: Semantic technology is being deployed in financial institutions to answer complex questions quickly and efficiently. While a simple keyword search finds data, a semantic search analyses the structure of a question to determine its context and meaning, and returns a relevant answer.

Applied to entity data, a use case of semantics is a 360-view of customer information. Semantics provide the ability to store data about a customer as the data is discovered and ingested from many diverse sources, without having to go through long and costly extract, transfer and load (ETL) cycles. It is particularly useful when data is not relational – customer onboarding documents stand out here as they are difficult to store in a relational database.

Using semantics, firms can make more meaningful data searches and improve the customer experience by providing better and faster responses to complex enquiries.

Blockchain and distributed ledger technology: Initial use cases of these technologies in financial services were in post-trade transaction and payments processing, both of which include entity data. More recently, KYC applications have integrated blockchain or distributed ledger technology to benefit from the ability to share customer information between users on the basis that the technology enforces 'single source of truth' datasets and immutable transaction logs.

These are relatively early days for blockchain and disturbed ledger technology, but they have already been proven to offer advantages of decentralisation, immutability of data, security, and transparency.

Legal Entity Identifier

The Legal Entity Identifier (LEI) is a free-to-use, standard entity identifier that uniquely identifies parties to financial transactions. The first issuance of LEIs was made in 2013. Initial adoption was slow, but picked up when MiFID II went live with a mandate in July 2018 to include LEIs in reporting. The number of LEIs issued has since continued to rise, but needs to rise further to make the identifier prevalent in capital markets. The number of LEIs issued at the time of writing this handbook was close to 1.8 million, up from nearly 1.6 million in April 2020.

While there are mixed opinions on the success of the LEI, more regulatory mandates requiring the use of the identifier would drive larger-scale adoption. To date, the LEI is required predominantly by EU and UK regulations such as MiFID II, EMIR, Market Abuse Regulation (MAR), Solvency II, Benchmark Regulation, and Securities Financing Transactions Regulation (SFTR).

The LEI is present in the US through the Dodd-Frank Act and is gaining ground on a global basis – **https://www.gleif.org/en/lei-solutions/regulatory-use-of-the-lei**. The elephant in the room remains the US Securities and Exchange Commission (SEC), and to a lesser extent other US authorities, that have yet to make widescale regulatory mandates for use of the LEI. If and when they do make such mandates, the identifier could become a key and consistent element of entity data management and global financial reporting.

A brief history

The development of the LEI and a global LEI system was mandated by the 2011 G20 Cannes Summit in the wake of the 2008 financial crisis and in the hope of averting further crises. While the crisis highlighted the inability of regulators to track parties to transactions, measure their counterparty risk and understand overall exposures with any speed, the LEI was designed to help regulators measure and monitor systemic risk by identifying parties to transactions quickly and consistently, and obtain an accurate view of their global exposures.

Based on recommendations made by the FSB following the 2011 G20 mandate, the global LEI system includes three key elements:

- A Regulatory Oversight Committee (ROC), which

Legal Entity Identifier

includes regulators from around the world that have agreed to participate in the global LEI system. The ROC took over management of the global LEI initiative from the FSB in January 2013.

- The Global LEI Foundation (GLEIF), which was set up in June 2014 as a Swiss foundation and non-profit organisation with a reporting line to the ROC, is the operational arm of the global LEI system and is responsible for the uniqueness of LEIs, open and free access to the identifiers, and high quality reference data. It is also responsible for the accreditation and monitoring of local LEI issuers.
- The GLEIF website – www. gleif. org, which provides a number of services including information on how to get an LEI, a list of LEI issuers, a searchable global LEI index of all issued LEIs, a daily concatenated file of LEI data, monthly data quality reports and numerous facts, figures and statistics on the global LEI population.

The LEI and related services have been developed significantly since the GLEIF was set up and took over operational responsibility of the global LEI system. Development highlights include:

- A data quality management programme based on clearly defined criteria that allow the quality of the LEI data pool to be monitored, assessed and optimised
- A facility to challenge LEI data that offers an easy and convenient means to trigger the verification of an LEI and, where required, speedily replace LEI records
- Provision of Level 2 'who owns whom' data that adds to Level 1 'who is who' data
- An LEI look-up API that allows developers to access the LEI data pool directly and in real time to perform on-demand checks for changes to specific LEI records
- GLEIF certification of the LEI mapping service, a free of charge service designed to ensure organisations mapping the LEI to their own identifiers use consistent methodologies and processes
- Downloadable BIC-to-LEI and ISIN-to-LEI relationship files
- Work with XBRL Global to include the LEI in XBRL taxonomy
- Golden copy files that respond to market requirements for more frequent publication of LEI data to support different time zones – the files are distributed three times a day at eight-hour

Legal Entity Identifier

intervals and are accompanied by delta files that identify only newly issued LEIs and revisions to an LEI's reference data reported in a golden copy file
- LEI Search 2.0 that supports searches for LEIs, corresponding legal entity reference data and relationship reference data that defines relationships between two or more legal entities
- GLEIF pioneers the inclusion of LEIs in digital, machine-readable financial documentation
- The verifiable LEI (vLEI), a secure digital attestation of a conventional LEI designed to extend use of the identifier and enable automated identity verification between counterparties operating across industry sectors on a global basis
- A validation agent scheme designed to drive adoption of the LEI by allowing banks to act as validation agents within the global LEI system and obtain LEIs for clients as they are onboarded or during a client refresh.

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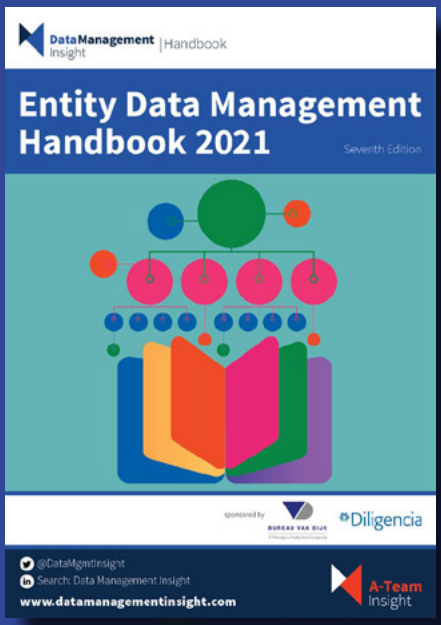

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Regulations Requiring Entity Data

Regulatory reform following the 2008 financial crisis sought to stabilise and secure capital markets by closing information gaps, providing a clear view of counterparty and market risk exposure, and improving transparency across financial markets. These intentions are embedded in a number of regulations that have a focus on entity data, including the LEI.

Post-Brexit, most EU regulation has been transposed into the UK regulatory regime, but small and often significant changes are adding to the compliance burden.

A snapshot of the entity data and LEI requirements of key regulations is provided below. Additional detail can be found in **A-Team Group's Regulatory Data Handbook**.

AMLD6

The sixth EU Anti-Money Laundering Directive (AMLD6) is a development of both AMLD4 and AMLD5, and highlights the EU's intent to protect the integrity of the financial system and challenge an escalating problem of anti-money laundering. Member states were required to transpose AMLD6 into law by December 3, 2020, with implementation due by June 3, 2021.

Post-Brexit, AMLD6 will not be transposed into the UK AML framework, which already includes many of the rules in the sixth directive.

AMLD6 extends AMLD5 with an extended list of money laundering offences that member states must criminalise; additional offences such as aiding and abetting, and attempting and inciting money laundering; an extension of criminal liability to legal persons such as companies, as well as individuals; and a longer minimum prison sentence for money laundering offences by individuals from one year to four years.

The data requirement for AMLD6 compliance includes legal entity, hierarchy and ultimate beneficial ownership (UBO) data for customer and relationship identification, due diligence, and screening for sanctions, politically exposed persons (PEPs) and adverse news.

Regulations Requiring Entity Data

Dodd-Frank

The Dodd-Frank Wall Street Reform and Consumer Protection Act is a US Government regulation that took effect on July 21, 2010. It aims to prevent another financial crisis by creating processes that enforce transparency and accountability across financial markets. It also implements rules for consumer protection.

To achieve its aims, the regulation focuses on standardisation of reference data, calls for the creation of new data, and issues guidelines on reporting formats and how to maintain and analyse data. The requirement for standardised reference data is designed to improve the quality of financial data available to regulators so that better risk analyses can be made.

The LEI facilitates these objectives by consistently identifying parties to financial transactions and supporting aggregation of risk information associated with each legal entity.

EMIR

European Market Infrastructure Regulation (EMIR) is an EU regulation that took effect on August 16, 2012. It aims to improve transparency and reduce risk in over-the-counter (OTC) derivatives markets. To achieve this, EMIR requires OTC derivatives to be cleared using a central counterparty (CCP) that is listed in the European Securities and Markets Authority (ESMA) registry and authorised under EMIR.

The regulation also includes risk mitigation procedures for bilaterally cleared OTC derivatives and requires all derivatives transactions to be reported to a trade repository.

Post-Brexit, UK EMIR requires all firms and central counterparties that enter into derivatives transactions in scope of EMIR to report details of the transactions to a Financial Conduct Authority (FCA) registered trade repository. While UK regime makes reporting changes, reports must continue to include LEIs and Unique Trade Identifiers (UTIs) to identify parties to transactions and improve transparency.

KYC

Know Your Customer (KYC) is not a single regulation, but the term used to describe requirements around customer due diligence that are made and enforced in different jurisdictions with different legislative regimes.

KYC covers the process companies must go through to identify and understand customers before conducting financial business with them. It includes onboarding, due

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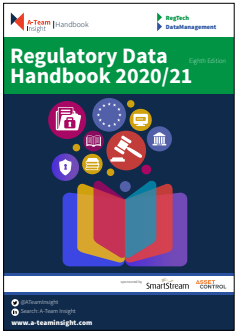
Regulations Requiring Entity Data



diligence and sanctions screening, and must be revisited frequently to ensure customer entity data is up to date, complete and correct throughout the customer lifecycle.

As well as being an element of customer due diligence, the KYC process is part of AML and is included in MiFID II.

MAR

Market Abuse Regulation (MAR) is an EU regulation that came into effect on July 3, 2016. The regulation strengthens EU rules on market integrity and investor protection that were first adopted in the 2003 Market Abuse Directive (MAD). The regulation aims to challenge insider dealing and market manipulation in Europe's financial markets.

Many of the provisions of MAR are the same as those in the initial MAD directive, but the regulation extends the scope of previous rules to include new trading platforms and technologies, and commodity and related derivative markets. It also bans the manipulation of benchmarks and introduces the LEI to reinforce the investigative and sanctioning powers of regulators.

Post-Brexit and similar to UK EMIR, UK MAR includes reporting to the FCA with a requirement to include the LEI.

MiFID II and MiFIR

MiFID II and Markets in Financial Instruments Regulation (MiFIR) are EU requirements that took effect on January 3, 2018. MiFID II extends the remit and scope of its predecessor, the original MiFID introduced in 2007, and aims to improve the competitiveness of European markets by creating a single transparent market for investment services and activities, and ensuring harmonised investor protection across Europe.

MiFIR acts as the regulatory reporting arm of MiFID II. Both the directive and regulation require use of the LEI to identify issuers and counterparties, and fulfil regulatory reporting obligations.

Post-Brexit, use of the LEI continues in UK MiFID II and MiFIR, despite changes to transaction reporting that require issuers with securities admitted to trading or traded on UK markets to submit information to

Regulations requiring entity data

the FCA regardless of any existing obligations under EU law to provide the information to an EU authority.

SFTR

Securities Financing Transactions Regulation (SFTR) is an EU regulation with a phased reporting requirement that started in April 2020. It is designed to highlight transactions that could pose a significant level of systemic risk and specifically sets out requirements to improve market transparency of securities financing. SFTs are typically transactions that use securities to borrow cash, or vice versa.

The regulation requires two-sided reporting, with both collateral provider and collateral receiver required to report their side of the SFT to an approved trade repository. Reports must use LEIs to identify counterparties and other parties involved in an SFT, such as agent lenders, central counterparties and central securities depositories.

Post-Brexit, the role of the LEI endures, although UK SFTR counterparties that enter into securities financing transactions in scope of UK SFTR must report details of the transactions to an FCA registered trade repository.

Outlook

With battle lines drawn between financial crime and advancing technology, the question is how to break the stand-off for the benefit of not only capital markets participants and their customers, but also local and global economies.

The figures involved in financial crime are frightful, with industry reports showing losses running up to $10 billion a year. Poorly constructed KYC and client onboarding processes add to the financial burden and reputational damage is heaped on top. From a technology perspective, every effort is being made to stamp out these issues, but however quickly it develops and however sophisticated it becomes, at the moment, bad actors are a step ahead.

There are, perhaps, two approaches to cutting down money laundering and redrawing the battles lines. The first, international cooperation, is daunting and will be difficult to achieve, despite an apparent willingness in many parts of the world to work together to reduce financial crime and its consequences.

The second approach is smaller, should be easier to accomplish, and is set out in this handbook. Entity data management, data quality and data governance are central to preventing money laundering and faulty KYC and onboarding processes. Technology deployed for the task is modern and dedicated, yet problems persist.

From a technology perspective, the need may be to go back to fundamentals: enterprise data management strategy that is ongoing, continuously reviewed and updated; unswerving dedication to entity data access and quality; and cultural commitment across the organisation.

With fundamentals in place, automation and digitalisation go some way towards improving AML, KYC and onboarding operations. Emerging data hubs also offer the promise of ‘always on’ entity data. With technology at its best and continually evolving, the next steps towards collaboration have to be big, bold and defiant to break down the battle lines and outwit the opponent.

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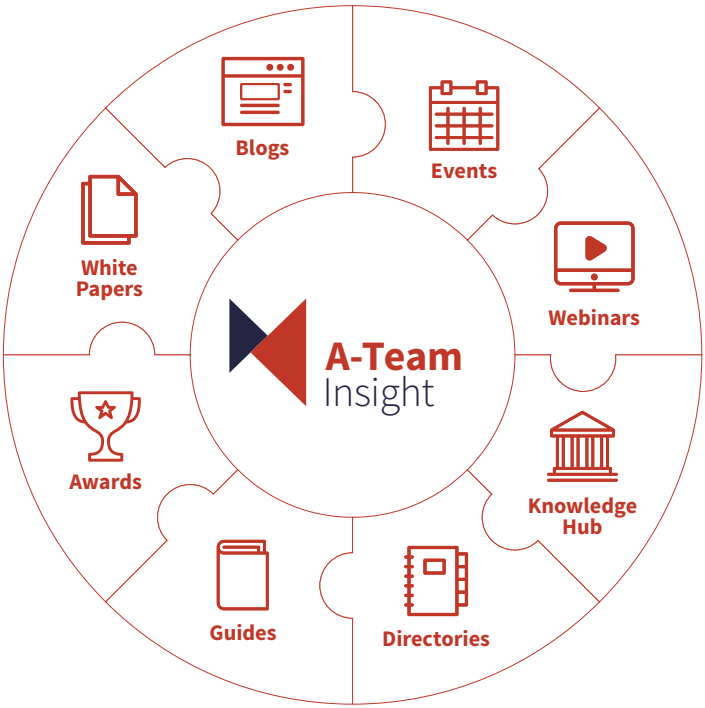

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Overview

Glossary

AI – Artificial intelligence

AML – Anti-Money Laundering

API – Application programming interface

CTF – counter terrorist financing

EMIR – European Market Infrastructure Regulation

ESMA – European Securities and Markets Authority, an EU authority that works to promote investor protection and stable and orderly financial markets

FinCen – US Financial Crimes Enforcement Network

FRTB – Fundamental Review of the Trading Book

FSB – Financial Stability Board, an international body that monitors and makes recommendations about the global financial system

GLEIF – Global LEI Foundation that acts as the operational arm of the Global LEI System

Global LEI System – a global system comprising the Regulatory Oversight Committee of the LEI, the Global LEI Foundation and Local Operating Units

ISIN – International Securities Identification Number that uniquely identifies a financial security

KYC – Know Your Customer, the process companies must go through to identify and understand clients before conducting financial business with them

LEI – Legal Entity Identifier designed to provide unique entity identification in financial transactions

LOU – Local Operating Unit within the Global LEI System that issues LEIs

MAR – Market Abuse Regulation

MiFID II – Markets in Financial Instruments Directive II

MiFIR – Markets in Financial Instruments Regulation

OFAC – Office of Foreign Assets Control of the US Department of the Treasury that administers and enforces economic and trade sanctions

OTC – Over-the-counter or off-exchange trading between two parties without the supervision of an exchange

PEP – Politically exposed person, an individual who holds a trusted and prominent position that could be abused for the purpose of money laundering or other financial offences

ROC – Regulatory Oversight Committee with ultimate responsibility for the Global LEI System

SFTR – Securities Financing Transactions Regulation

UTI – Unique Trade Identifier designed to provide unique trade identification in financial transactions

XBRL – eXtensible Business Reporting Language provides a free and global framework for exchanging business information

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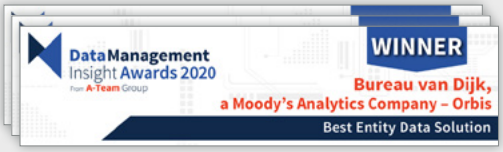

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