



Bridging the Regulatory Gap
through Modern Technology

CASE STUDY:

PROOF OF CONCEPT PROJECT
IMPLEMENTATION WITH A GLOBAL
SYSTEMICALLY IMPORTANT BANK (G-SIB)

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The Monetary Authority of Singapore (MAS) Is Leading The Way For Banks To Embrace Technology

Rapidly evolving regulatory requirements and increasingly complex banking business models are driving financial institutions to adapt and embrace innovation and technological transformation to remain competitive. The Monetary Authority of Singapore (MAS) is encouraging banks to harness the power of RegTech combined with business knowledge to enhance their ability to meet changing regulatory obligations. Modern technologies like Natural Language Processing (NLP) and Machine Learning (ML) could be leveraged to build intelligent automation, thus creating efficiencies and insulating financial institutions from regulatory change. MAS' approach to building collaboration between public and private stakeholders for reporting including MAS 610, 1003, 1015, 649 is setting the tone for a sound and progressive financial centre and creates a receptive environment for the implementation of data-driven and technology-driven processes. Banks can leverage new technology and streamlined processes to deliver transparent, timely, auditable reports and confidently meet their regulatory obligations while growing their businesses.

The balance of this Proof-of-Concept paper describes a MAS reporting project implementation case study based on a collaboration with a Global Systemically Important Bank (G-SIB). The case study describes why data standardisation, data re-use, technology-driven processes, and transparent systems are critical in today's regulatory environment and how financial institutions can leverage data harmonisation and innovative technologies to build futureproofed and sustainable regulatory reporting processes.

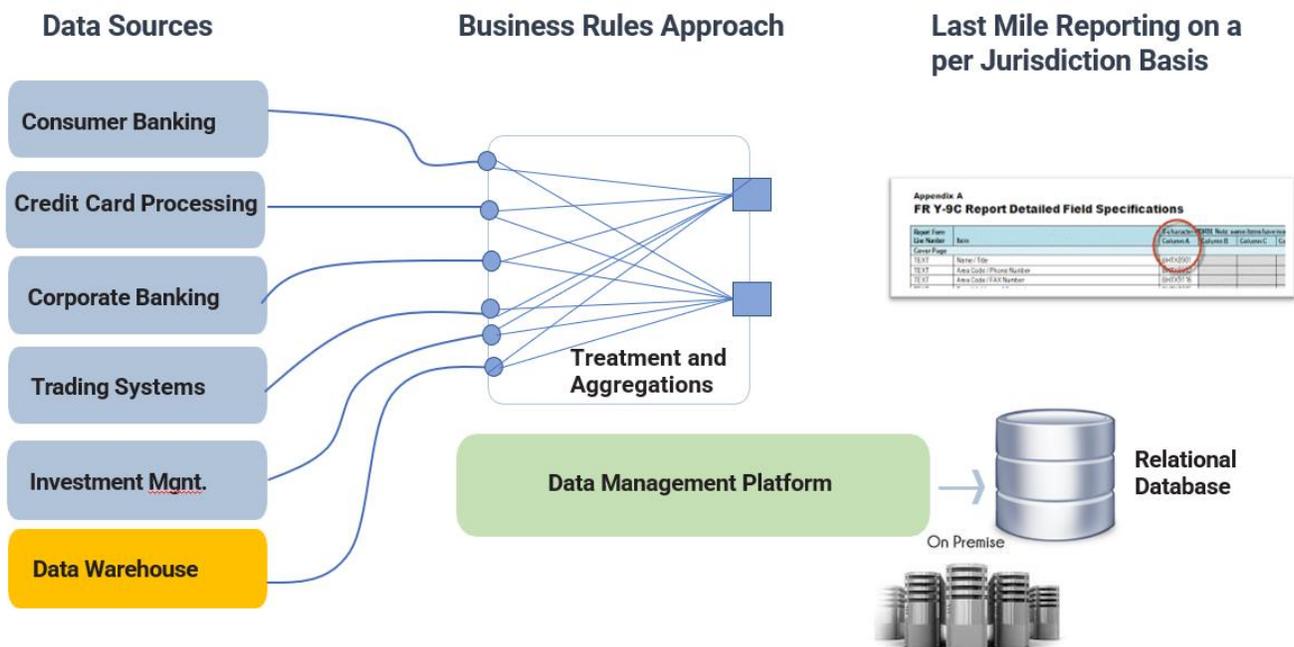


What Are Financial Institutions Facing? Moving From A Defensive Regulatory Approach To A Progressive Approach And Collaboration

Since the global financial crisis, reforms have increased the regulatory burden for financial institutions. Previously, financial institutions invested in legacy technology systems with bespoke solutions for regulatory reporting which produced neither standardised nor high-quality data. Given this defensive regulatory approach, adapting to new requirements has proven a significant cost and resource burden.

To meet regulatory requirements in the immediate term as well as in the future, access to standardised, high-quality, and transparent data is essential, albeit problematic for a few reasons as illustrated here. Given this defensive regulatory approach, adapting to new requirements has proven a significant cost and resource burden.

Traditional Approach To Data Collection And Aggregation For Regulatory Reporting



With disparate data sources and opaque treatment and aggregations – done in-house or by third-party providers – a defensive approach meant that firms often scrambled to meet changing requirements. Processes lacked the flexibility to seamlessly transition and manage ongoing regulatory change and a patchwork of solutions was created to meet jurisdictional variations. More recently, financial institutions have turned to a progressive, technology-driven approach to address the increased complexity of regulatory requirements, including creating data efficiencies, building automated processes, and using Cloud. However, to successfully implement these capabilities, data standards are essential.

Due to the lack of a common data standard in the overall financial system, data at financial institutions is not harmonised, and therefore not comparable. Individual firms collect and store financial regulatory data in different formats and according to diverse definitions. This lack of comparability of financial regulatory data across institutions has a significant impact on regulators' monitoring of stability in the financial system. Furthermore, data quality has proven to be a hurdle for both financial institutions and regulators. The quality of data is determined by its accuracy, completeness, and reliability and financial regulations require all firms to collect certain data points according to specific definitions. However, consistency is a problem. For example, because readily accessible and reliable technical documentation for mortgage data requirements does not exist, data produced

by a mortgage lender cannot definitively be relied upon to be accurate and complete. This kind of non-harmonised and low-quality data emanating from disparate systems has led many financial institutions to rely on a patchwork of legacy, often black box solutions for their regulatory reporting. Opaque and inflexible systems lack the level of transparency that regulators demand and therefore, creating traceable, auditable, and defensible reports becomes a costly endeavor. While large financial institutions find this burdensome, smaller firms simply cannot afford these significant costs. For neither size of institution does this achieve the data standardisation, data quality, or transparency required for current and future regulatory reporting needs.

To address regulator expectations around data traceability and auditable submissions, institutions are now moving towards collaboration on data standardisation and harmonisation. Data standardisation is a powerful tool that contributes to collaborative regulatory harmonisation. It leads to cost savings and efficiency gains, while ensuring comparability of outputs across jurisdictions. It also facilitates cross-border transactions and reduces maintenance costs. Like harmonised regulatory systems, harmonised and standardised data ensures that outputs are of a reliable quality, thus reinforcing trust, a condition that aligns with the goal of MAS to promote a sound and progressive financial centre.



Data Harmonisation

The Financial Regulatory Data Standard (FIRE) is the only global open-source financial regulatory data standard and is a mechanism that harmonises data, at any level of granularity, across global reporting jurisdictions. Suade is creating industry-wide standards from a data and regulatory definition perspective by leveraging FIRE and embedding regulatory rules into its Risk and Regulations Aware platform, using technologies like ML, and sourcing the right data. Data is re-used to ensure harmonisation across current and evolving reporting requirements (e.g., credit, liquidity, capital, ESG), and time to market and operational costs are reduced due to the efficiencies of data re-use and ML and NLP intelligence.

Consistency

When firms have access to FIRE, they can use consistent and quantifiable data across their organisations, even in the case of missing or incomplete data. With data standardisation, they can access the right data and efficiently aggregate as required. Given the efficiencies of FIRE, data can be re-used across an organisation, thus delivering efficiencies and enabling consistency of reporting across jurisdictions and for diverse reporting requirements. In addition, the built-in transparency of the platform means that logic can be clearly demonstrated, and regulatory reports can be submitted with confidence.

Futureproofing

Suade enables financial institutions to achieve ratio objectives and derive business insights while insulating their processes from regulatory change. Organisations must be able to respond to the demands of changing regulations with the “right data” and processes that are flexible, transparent, and automated. A system that can aggregate credit/liquidity/counterparty/market/operational/transition risk data and adapt to jurisdictional nuance and format types like XML becomes critical, as does having a central data repository.

RegTech Driven: The Suade Platform Delivers A Fresh Perspective

Attempts at creating international standards have mostly taken the form of high-level principles, leaving national implementation for both regulation and supervision to be considerably different across jurisdictions. RegTech is transforming the industry's approach to regulatory compliance, including MAS requirements, with harmonised data and innovative technology to deliver

consistency across regulatory requirements around the world. The Suade Risk and Regulations Aware platform demystifies regulatory requirements by identifying the outcomes required by regulators and harnessing the power of technology to create value.

The Suade Risk And Regulations Aware Platform

Institution's Data Sources

- Core Banking Systems
- Product Sources
- Data Warehouse



Straight Through Processing

PermissionsAware WorkflowAware AuditAware ThresholdAware ScenarioAware



FIRE



DataAware

CalculationsAware



RulesAware



ReportingAware



SubmissionAware

LineageAware

ReconciliationAware

CloudAware

PerformanceAware

SecurityAware

DevOpsAware

DeployAware

DeliveryAware API Aware



On Premises

The platform delivers efficient, futureproofed outcomes and empowers firms to generate value from risk and regulatory reporting with:

- *A data standard* – providing data consistency, eliminating attribution errors, and maximising efficiencies.
- *Immediate regulatory updates across jurisdictions* – automatically delivering regulatory rule changes to the platform.
- *Data traceability* – tracking usage of a single data point in reports and calculations.
- *An audit trail of decisions* – enabling general governance and transparency.
- *Logic for allocations and calculations* – demonstrating ownership of sign-off and justification of calculation implementation.
- *Flexibility* – strategically addressing regulatory, geopolitical, and environmental changes with futureproofed and technology-driven processes.

Firms can access the right data, therefore mitigating the possibility of error that can result from collecting bad (inaccurate or incomplete) data. Thus, they gain a fresh perspective on their reporting, including confidence in their end-to-end regulatory practices, trust of their data and processes, and substantially lowered operational costs.

Transparent, easily accessible data and futureproofed technology enables functionality while decreasing the resources required to manage diverse risks effectively so that firms can benefit from greater insights while reducing implementation time by more than 50% and focus on their core businesses.



The Tangible Value Of A RegTech Platform Combined With An Open-Source Data Standard: A G-SIB Must Scale Across Jurisdictions And Quickly Adapt To Change

A G-SIB was already meeting reporting requirements in multiple jurisdictions using the Suade platform. As outlined below in Phase 1, the relationship with Suade began in 2019 when Suade and the G-SIB began a partnership implementing EBA-mandated liquidity reports and MAS 610/1003. With significant updates to MAS 610/1003 reporting templates coming into effect in July 2021, the G-SIB had concerns

about this new reporting requirement and how to manage their growing obligations across jurisdictions, including MAS 649/1015 and other reports in scope for MAS in the near term. The G-SIB concluded that their legacy systems were not technology-driven and revamping their internal systems would take months if not years, and they did not have the luxury of time.

An Evolving Relationship For Delivering MAS Reporting



Challenges For The G-SIB

- Tight timelines for 610/1003 addressed by leveraging FIRE and Suade’s expert knowledge
- New jurisdiction expansion completed quickly through data re-use and building on existing reports
- Regulatory definitions for BIS, QIE, 649/1015 resolved based on Suade’s experience with European reporting requirements
- Accuracy testing of reports completed leveraging benchmarking data and an agile and open collaboration with the G-SIB
- Implementing 9 decimal points due to XML format mandate accurately completed by Suade software developers



They turned to Suade and by leveraging the expertise of its RegTech team and data efficiencies of FIRE the client was able to meet tight timelines and complete their updated MAS 610/1003 reporting requirements on time for the July 2021 deadline.

As illustrated in Phase 2, Suade addressed ongoing challenges facing the client with a proposal for delivering MAS 649/1015, Quarterly Income and Expense and BIS Foreign Resident Bank reports. The G-SIB benefited from a trusted partnership, efficient data re-use from previously completed reports, and automation of their processes.

While the G-SIB was implementing their new reporting processes with Suade, MAS mandated regulatory changes for the 610/1003 reports that presented the G-SIB with new challenges, namely:

- A change to 9 decimal points in the reporting template
- Rounding errors due to data that went to 2 decimal places
- XML compatibility across submission formats

Suade and the G-SIB together needed to address these challenges within the same context of limited time and completely revamping legacy systems dominated by manual processes.

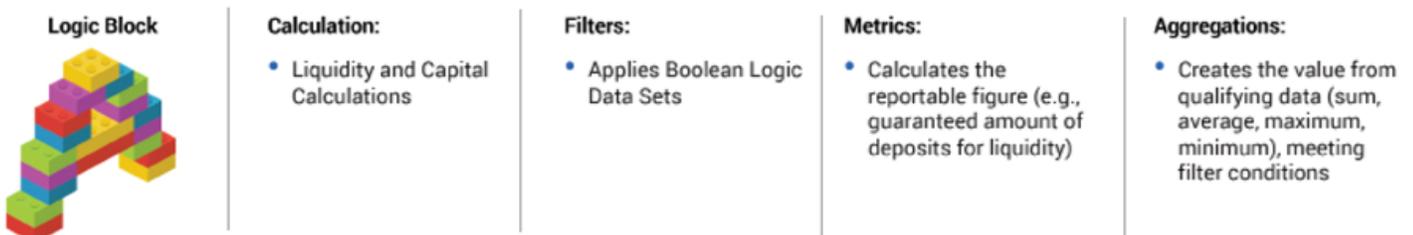
Building A Partnership With Suade: The G-SIB Is Now Prepared To Meet New Reporting Requirements Globally With An Intelligent Platform

Given their concerns about meeting the tight timelines for new and expanded MAS reporting requirements, leveraging FIRE for data re-use and automated processes was a welcome opportunity for the G-SIB. Closely collaborating on addressing the 9 decimal point and XML requirements contributed to making that process seamless for the client, and engendered confidence that a futureproofed, transparent solution would be the end result. In addition, relying on Suade’s Logic Blocks to apply the correct regulatory rules was an efficient and effective option for the G-SIB. Equally, the re-usability of FIRE attributes across jurisdictions meant a smooth and efficient development process for Suade engineers, reducing the possibility of errors and contributing to a quick implementation timeline. These intelligent elements have enabled the G-SIB to be prepared for multiple regulatory requirements globally.

Fundamentally, data re-use is possible because the Basel Committee on Banking Supervision (BCBS) prudential standards,

from which reports across multiple jurisdictions are derived, create a global standard for data harmonisation and FIRE leverages this harmonised data. FIRE was built on the premise of defining data once and re-using. As a result, FIRE includes approximately 400 different attributes to cover many jurisdictions and Suade has built more than 10,000 Logic Blocks that can be re-used across multiple calculations. For example, 24 attributes are needed to calculate LCR per EBA requirements and all those attributes can be efficiently and consistently re-used in MAS reporting calculations due to significant overlap.

The client could leverage FIRE and the re-use of data points from their previously existing reports for the EBA while Logic Blocks delivered the correct regulatory rationale. Suade’s Logic Blocks enable calculations, filters, metrics, and aggregations uniquely suited for risk and regulatory reporting as shown in the diagram below.



Combined with Logic Blocks, FIRE also has the ability to provide the correct language for NLP and ML algorithms to interpret regulatory data. Suade's NLP algorithm can read regulatory reports emanating from a central bank and create a framework for a digital reporting schedule. For example, the NLP algorithm can read a report and suggest logic to be deployed for specific fields. A process that uses this NLP intelligence is extremely efficient versus a traditional method of manually reading a regulatory report, and doing business analysis, data definitions, and coding. A technology-driven method allows financial institutions, including this G-SIB specifically, to easily expand their reporting through Suade into new jurisdictions at a fraction of the traditional cost. For example, Suade delivered MAS 610 reporting to this G-SIB in 10 weeks, a process that was expected to take more than 3.5 years to complete, according to timelines outlined by regulators.

Due to a strong collaborative partnership, Suade and the G-SIB addressed the challenges of meeting new and evolving MAS reporting requirements with an iterative approach including ongoing communication, particularly between subject matter experts at the respective organisations. This ensured a high-level of efficiency, transparency, and agility for all technology and data requirements as they evolved. Updates to both implementation steps and data were communicated to the G-SIB in real time by Suade's RegTech team. The client felt confident that they were meeting all requirements and leveraging accurate and timely data to populate their reports for MAS.

Regarding the process of working with Suade a technology officer at the G-SIB remarked, *"Building an in-house system and embedding jurisdictionally nuanced logic could have been a multiyear project. Suade's automation of our MAS reporting not only freed up a substantial portion of our technology resources and enabled us to quickly meet our reporting deadlines, but with built-in data lineage and quality checks from Suade's RegTech team we are confident in the auditability of our submitted MAS reports."*

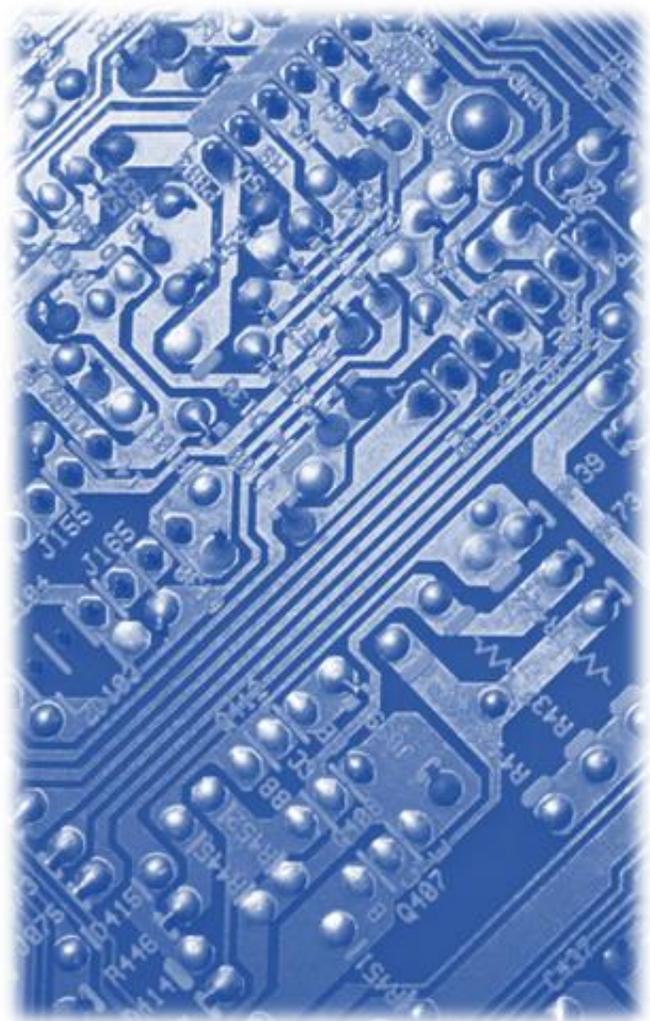
The Suade platform quickly addressed a major regulatory mandate in Singapore by efficiently leveraging existing reporting data points in FIRE and combining these with the client's EBA reports, creating data consistency and operational efficiencies across jurisdictions. As part of the ongoing partnership, as of July 2022, Suade completed MAS Quarterly Income and Expenditure (QIE) and Bank for International Settlements (BIS) Foreign Resident Banks reporting for the G-SIB, a project begun in March of this year. Enhancements to the platform allow the client to re-use the same datasets for MAS 610 and the new liquidity reports, since notice 610 provides year-to-date balances while QIE provides month-to-date profit and loss amount. In the past, reports were generated manually, but Suade has automated the G-SIB's processes significantly, minimising manual efforts for this set of reports and reducing future efforts for onboarding new reports. Overall, the bank has achieved cross enterprise data re-use and complete traceability and transparency in their regulatory reporting for MAS and is building on this foundation for their reporting needs globally.

RegTech Is At The Forefront Of Quantum Change In Regulatory Reporting

One of the largest costs for financial institutions in meeting regulatory reporting obligations is quickly complying with change. This includes expanding into new jurisdictions, managing evolving reporting schedules, and responding to expanded regulation requirements like Basel IV or Environmental, Social, Governance (ESG) guidelines. With increased digitisation being used by the global regulatory community, there is an opportunity to leverage the latest artificial intelligence (AI) technologies to deliver a quantum change in managing the cost of regulatory reporting.

In the case of this G-SIB, the data being used to inform MAS and EBA reporting can be leveraged to complete reporting in other jurisdictions because the Suade platform lends itself to developing reports for other jurisdictions transparently, quickly, and efficiently. For example, FR 2052a liquidity reporting in the United States has traditionally required a new set of data points, given that the US Federal Reserve sets their own standards, which may or may not be identical to requirements of other global frameworks like Basel, the EU or MAS. When institutions expand into other reporting jurisdictions, they often face long implementation times and prohibitive costs as they accommodate the requirements of the local regulator. However, since the FIRE schema is evolutionary, it does not just address one problem in isolation. Rather, it promotes

consistency across reporting requirements and jurisdictions and revolutionizes previously cumbersome and error-prone manual processes. As this G-SIB meets its reporting obligations globally, the data needed for new or evolving reporting requirements or expansion into additional jurisdictions like FR 2052a reporting, can be easily extrapolated, enabling seamless, cost-effective, and quick implementation.





Suade's ecosystem is transforming this G-SIB's approach to regulatory compliance by removing the complexity of managing ongoing regulatory change and replacing it with simplicity, consistency, and transparency. By combining FIRE and ML algorithms that interpret legal regulatory definitions across jurisdictions with Suade's platform – which enables atomic data to be “re-used” to meet regulatory requirements across jurisdictions – institutions including this client achieve a remarkable result: regulatory reporting efficiency and up to 70% in savings. Suade's NLP algorithm automates approximately 85% of the labour required to meet the needs of regulatory reporting for a given jurisdiction. Suade's RegTech team delivers validation and quality assurance for each one. Furthermore, transparent and robust drilldown capabilities mean firms can confidently demonstrate data sources for internal risk assessments and regulatory reporting.

Suade will draw on important lessons learned from the successful completion of this Proof of Concept as it continues to partner with this G-SIB and with other institutions in the future, both large and small. Suade looks forward to delivering a quantum change in managing regulatory reporting by combining innovative technology with harmonised and consistent data for futureproofed processes that enable financial institutions to confidently and efficiently report both in the MAS jurisdiction and across the world.

Building Resilience In An Unrelenting Age Of Evolving Regulations

As regulatory reporting evolves, it is important for RegTech firms to remain at the forefront of both regulatory and technology developments to enable the delivery of holistic capabilities to firms globally. A RegTech firm created in 2014, Suade delivers an intelligent data-driven platform that encompasses the only global open-source financial regulatory data standard and enables risk and regulatory reporting.

Driving Data Standards

Recognized by the World Economic Forum as a Global Innovator and acknowledged and trusted by institutions including the European Central Bank, Federal Reserve Bank of New York, and the Bank of England, FIRE interprets legal regulatory definitions across multiple regulators and enables atomic data to be “re-used” to meet multiple regulatory bodies’ requirements across jurisdictions. FIRE leverages the “Wisdom of the Community”, gathering information from hundreds of financial institutions to standardise and harmonise data definitions across multiple jurisdictions.

Harnessing Powerful Technology

The modern Suade platform demystifies regulatory demands by:

- Identifying and aligning the legal definitions required by regulators to deliver regulatory filings

- Harnessing the power of technology to deliver straight through processing, auditability, reconciliation, and intelligent automation
- Providing value and efficient outcomes
- Delivering against agreed upon Service Levels with uptime and disaster recovery elements for financial institutions
- Insulating firms from platform and regulatory change by leveraging managed services and Cloud technology (ISO 27001 & SOC 2 Certified)

Turning Risk And Compliance Into Opportunities

There are significant possibilities for achieving regulatory harmony between financial institutions and regulatory requirements when firms have access to the right data and technology. The Suade Risk and Regulations Aware platform delivers one holistic ecosystem that reads regulations, automates processes, complies with rules, analyses data, runs scenarios, supports audits, and validates procedures, achieves advanced analytics, makes decisions, and enables accurate, timely and confident submissions.

When financial institutions have access to harmonised data, leading technology, and a holistic system for managing risk and regulatory reporting, they reap the benefits of transparent processes today and build resilience and futureproofed systems to be ready for tomorrow.



About Suade

Founded in 2014, Suade, leading RegTech firm, stands apart by transforming the industry's approach to regulatory compliance. Harnessing the power of Suade's technology with an intelligent data-driven platform that utilises Natural Language Processing (NLP) and Machine Learning (ML), enables financial firms to achieve efficiency ratio objectives, and gain greater business insights while insulating them from regulatory change.

Suade's approach to data discipline is rooted in its Financial Regulation (FIRE) Data Standard, the only global open-source regulatory data harmonisation that brings together regulators and financial institutions to a congruent set of data definitions and properties. Building on FIRE, Suade leverages the latest technologies to streamline compliance, enhance automation, accelerate processing speed, and transparently manage a wide range of risks across jurisdictions.

Suade, recognised as a Global Innovator by the World Economic Forum, serves a global clientele of financial institutions with a presence in the UK, Europe, North America, and Asia.

Get in touch: marketing@suade.org



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