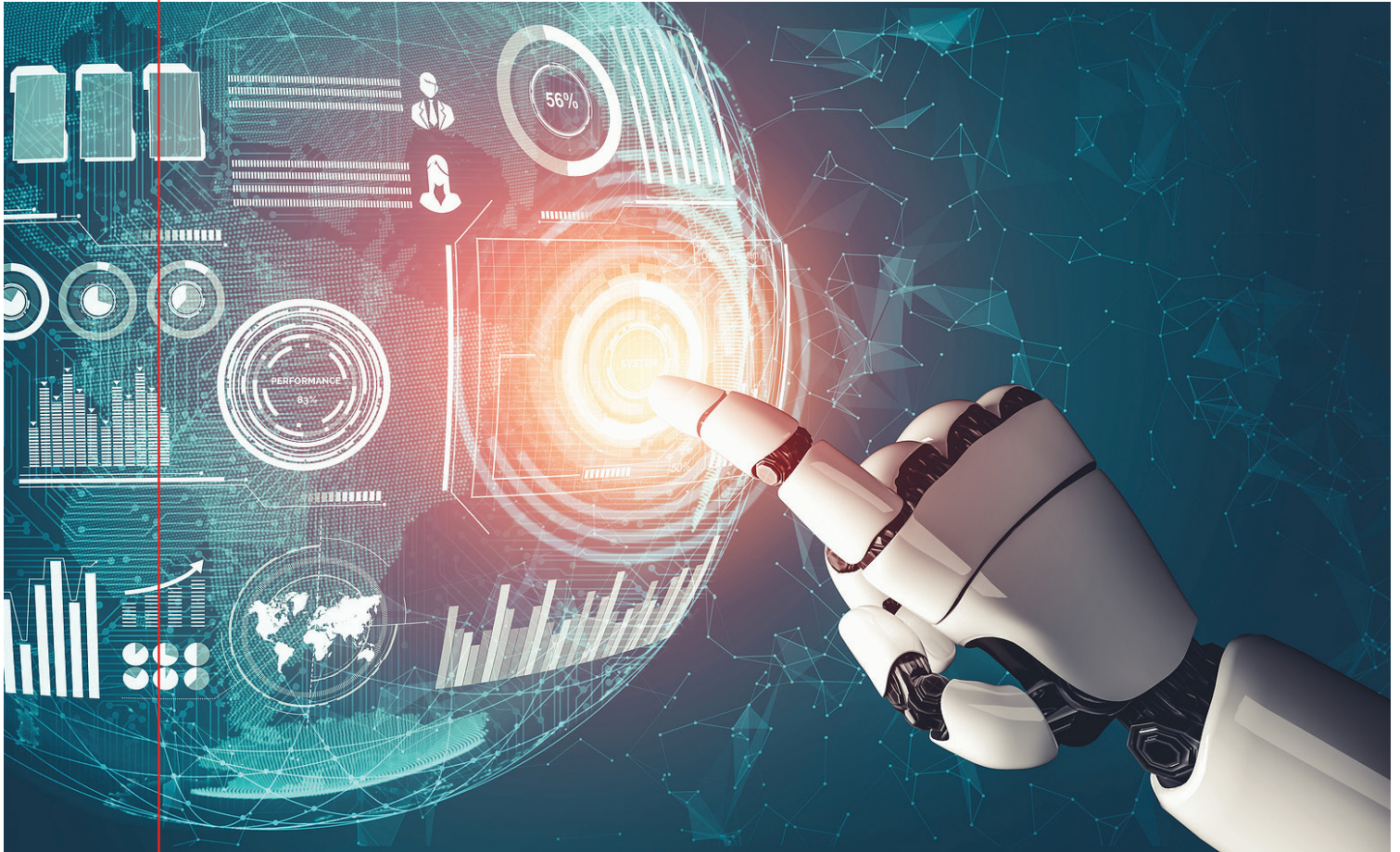




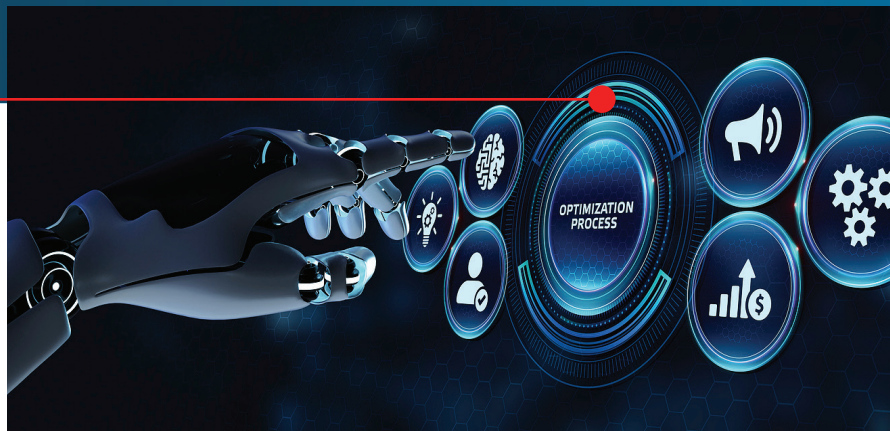
Can Robots Run The Galaxy, Or At Least Automate Regulatory Reporting?

BY HARRY CHOPRA, CHIEF CLIENT OFFICER, SUADE



Although robots are essential in running the galaxies of *Star Wars*, *Star Trek*, *2001 Space Odyssey* and other imagined worlds, the truth is that they can't read. Or rather, they can read by rote, but they don't have the intelligence to interpret nuance. For regulations, legal definitions are highly dependent on context and there may be underlying human assumptions or interpretation that are absent in the text. This fact seems to point to the unfortunate conclusion that using robots to automate regulatory reporting could only be a reality in a science fiction world and not ours. But what if new technologies like Natural Language Processing (NLP) and Machine Learning (ML) could be leveraged to create intelligent robots, thus creating efficiencies and managing ongoing regulatory change? That kind of technology might not change the future of galaxies far away, but it could certainly alter how efficiently financial institutions meet regulatory requirements in this one.

Can Robots Run The Galaxy, Or At Least Automate Regulatory Reporting?



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Implementing Quantum Change: Teaching A Robot To Read

One of the largest costs for financial institutions in meeting regulatory reporting obligations is accommodating 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 technologies to deliver a quantum change in managing the cost of regulatory reporting. But before this new technology can be deployed to automate regulatory reporting, we need to teach a robot how to read. More specifically, the robot must learn a language to interpret regulations and any changes that may occur.

Learning Regulese: The Language Of Regulation

When traveling outside the Milky Way, it might be necessary to speak Klingon, Wookiee, or Ewok to make yourself understood. In the world of regulation Regulese is the language of choice. Let's assume that robots can be programmed to read Regulese, but can they really understand what they're reading? After all, legal wording is highly dependent on context and there may be underlying human assumptions or interpretations that are absent in the text. An example is illustrated below.

FFIEC 031 Report Form:

- When total assets equal or exceed \$10 billion a bank must begin to complete Schedule RC-E, Part II, items 1 through 6, for the amount of deposits in foreign offices by type of depositor.
- The entire 802-page document is prefaced with this statement: unless the context indicates otherwise, the term "bank" in the Call Report instructions refers to both banks and savings associations.

The word **bank** is used 3,876 times in the document and context is hugely important. Not only could bank be referring to either banks or savings associations, but whether other regulations will use the same definition of **bank** is uncertain, meaning that once a robot learns the word bank there is no guarantee Regulese usage will be consistent across regulatory requirements. This could become even more complicated with jurisdictional variance, especially for banks operating globally. With linguistic details like this one causing complications in interpreting semantics, institutions may be wondering how or even if they can automate regulatory reporting by integrating robots into their processes, leaving them asking:

- Are we prepared to manage ongoing regulatory change, optimise resources, and automate processes?

- Can we create a language for an NLP engine to interpret legal nuance in regulations?

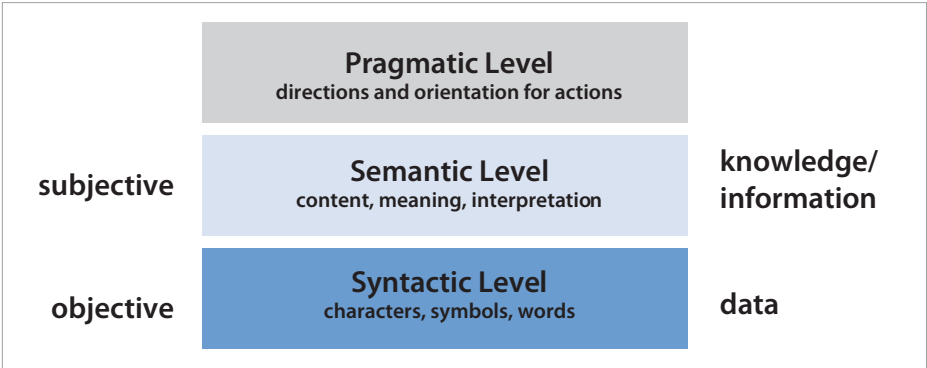
- How transparent is the logic used by ML and NLP processes to do “human” validation and quality assurance?

- Are we positioned to enter new jurisdictions at a reasonable cost?

Interpreting Regulese: If Only C3PO Had That Program

The inimitable robot C3PO always understood his friend and fellow robot R2D2 because he was programmed to, but R2D2’s messages were relatively simple compared to pages and pages of complex regulations written in Regulese. As seen in the case of the word bank in the FFIEC O31 Report, while syntax is constant, the semantics change and require interpretation using robotic process automation, NLP, or ML.

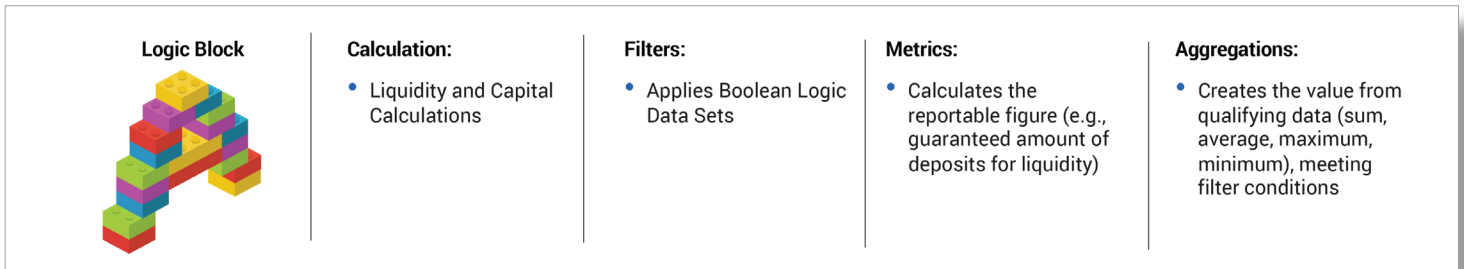
Syntactic + Semantic + Pragmatic = Comprehensive Regulese Interpretation



Therefore, standardised definitions of regulations are required so that a system can correctly interpret Regulese and provide a consistent architecture across reporting requirements globally. FIRE, the only global open-source Financial Regulatory Data Standard to enable risk and regulatory reporting, provides definitions that are the industry’s only data standard for the interpretation of regulations. However, even if a system enables both syntactic constancy and semantic interpretation, a human element is still required to deliver the pragmatic element of validation and quality assurance.

Logic Blocks And NLP: Good Grammar And An Extensive Vocabulary Deliver Reporting Efficiencies

To speak a language fluently, good grammar and an extensive vocabulary are essential. Regulese is no different. Suade's Logic Blocks enable calculations, filters, metrics, and aggregations uniquely suited for risk and regulatory reporting as shown in the diagram below. They serve as the grammatical foundation for Regulese.



FIRE provides the correct vocabulary for NLP and ML algorithms to interpret regulatory data and regulation changes. Suade's NLP algorithm can read regulatory reports from central banks, monitor regulation changes daily, and deliver suggestions for those changes to Suade's RegTech team so they can ensure validation and quality assurance for the relevant reporting templates. Once the NLP algorithm has read the regulatory changes, the information is bounced against more than 10,000 Logic Blocks to create the appropriate suggestions for delivering new reports and managing ongoing regulatory change. This capability is then further developed by leveraging ML to deliver suggestions prior to submission, as seen in the Schedule RC-C report.



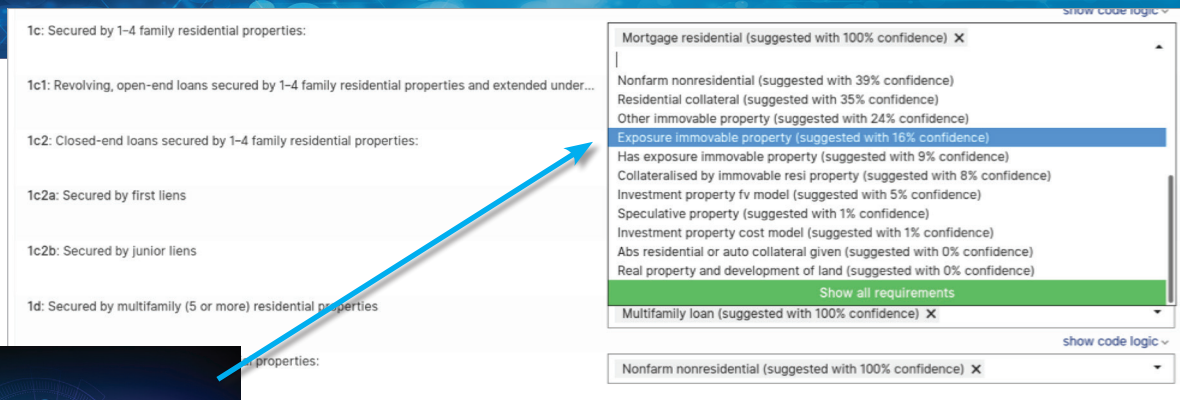
A line item on a regulatory filing is extracted using NLP. It is bounced against regulatory syntax and semantics, i.e., Logic Blocks

Schedule RC-C—Loans and Lease Financing Receivables

Part I. Loans and Leases

Do not deduct the allowance for loan and lease losses or the allocated transfer risk reserve from amounts reported in this schedule.¹ Report (1) loans and leases held for sale at the lower of cost or fair value, (2) loans and leases held for investment, net of unearned income, and (3) loans and leases accounted for at fair value under a fair value option. Exclude assets held for trading and commercial paper.

| Dollar Amounts in Thousands | (Column A) Consolidated Bank | | (Column B) Domestic Offices | | |
|---|---------------------------------|--------|--------------------------------|--------|------------|
| | RCFD | Amount | RCON | Amount | |
| 1. Loans secured by real estate: ² | 1410 | | | | 1. |
| a. Construction, land development, and other land loans: | | | | | |
| (1) 1–4 family residential construction loans | F158 | | F158 | | 1.a.(1) |
| (2) Other construction loans and all land development and other land loans | F159 | | F159 | | 1.a.(2) |
| b. Secured by farmland (including farm residential and other improvements) | 1420 | | 1420 | | 1.b. |
| c. Secured by 1–4 family residential properties: | | | | | |
| (1) Revolving, open-end loans secured by 1–4 family residential properties and extended under lines of credit | 1797 | | 1797 | | 1.c.(1) |
| (2) Closed-end loans secured by 1–4 family residential properties: | | | | | |
| (a) Secured by first liens | 5367 | | 5367 | | 1.c.(2)(a) |
| (b) Secured by junior liens | 5368 | | 5368 | | 1.c.(2)(b) |
| d. Secured by multi-family (5 or more) residential properties | 1460 | | 1460 | | 1.d. |



Regulatory syntax and semantics allow the NLP algorithm to “understand” the report and suggest logic. The logic is validated by the pragmatic component, i.e., Suade’s RegTech team human experts.

In the example here, the NLP algorithm reads the Schedule RC-C report and suggests the logic of ***Exposure immovable property*** to be deployed for ***Row 1c Secured by 1-4 family residential properties***. The NLP algorithm automates approximately 85% of the labor required to meet the needs of regulatory reporting for a given jurisdiction and Suade’s RegTech team delivers validation and quality assurance for each one. Using this NLP intelligence is extremely efficient versus a traditional method of manually reading a regulatory report, defining data, creating code, and undertaking a complete business analysis. With data re-use and built-in automation this technology-driven method enables institutions to automate regulatory reporting, thus efficiently managing their current requirements and allowing them to easily expand into new jurisdictions at a fraction of the traditional cost.

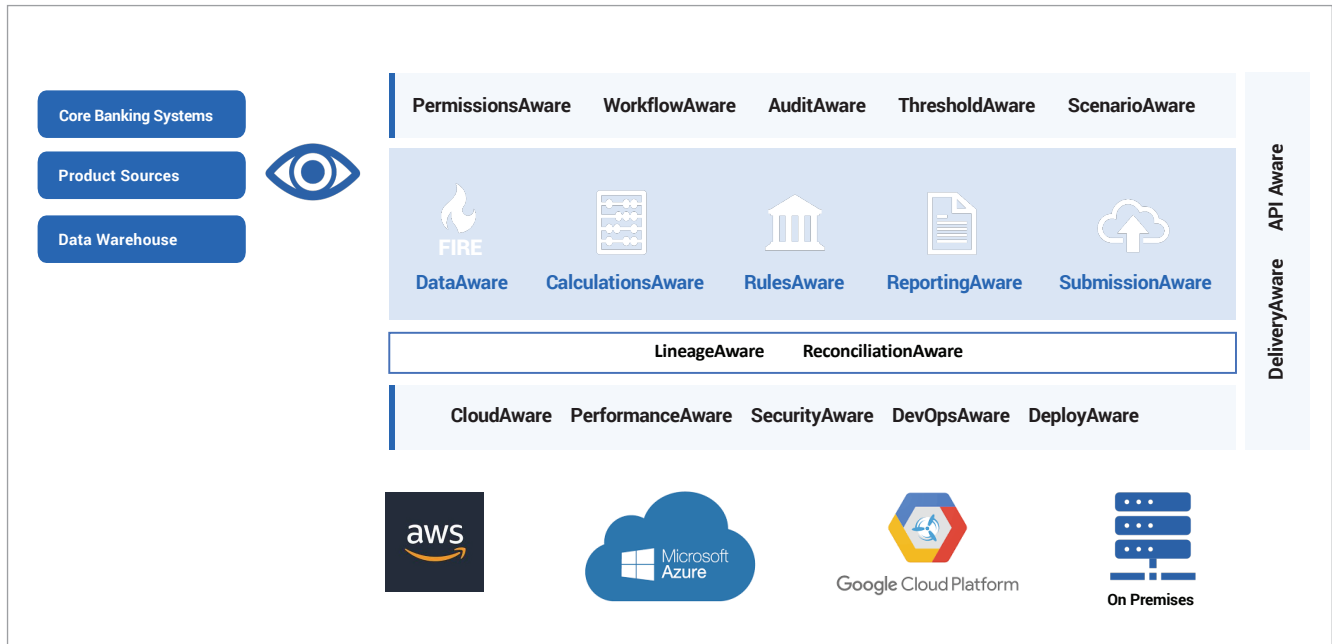
Suade’s Robots Are Changing The Reg-Galaxy

Suade’s robots have the power to speak Regulese and interpret regulatory complexities, thus the Risk and Regulations Aware platform is transforming the Reg-Galaxy and the industry’s approach to regulatory compliance. The platform delivers efficient 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

Suade: Demystifying Regulatory Requirements

Suade Risk and Regulations Aware Platform



With Suade's capabilities financial institutions can trust their data and processes, benefit from greater insights, futureproof against ongoing regulatory change, and automate regulatory reporting while substantially lowering operational costs and reducing implementation time by more than 50%. This enables them to manage their risk and regulatory requirements in one place, and focus on their core businesses, achieve ratio objectives and derive business insights.

We demystify regulatory requirements by identifying the outcomes required by regulators and harnessing the power of technology, including NLP and ML, to create value. Combining the latest technology available with the Suade RegTech team's expertise means financial institutions are insulated from technology and regulatory change. In addition, the built-in transparency of the platform means that the logic of syntax and semantics can be clearly demonstrated, and expert-validated regulatory reports can be submitted with confidence. Proficiency in Regulese by intelligent robots is no longer the purview of science fiction fantasy, it is a key element for the future of the Reg-Galaxy as firms automate regulatory reporting and harness technology to streamline processes.

**To discuss your risk and regulatory reporting needs in English, Regulese,
or a language of your choice, [contact us](#).**

