

Encoded Regulation and Procedures Golden Source for Rule-Based Knowledge



DF 2020

The Strategy

Our rule-based knowledge blueprint is the means to transcend the way every individual and organisation applies regulatory and procedural rules. Traditionally these rules have been constrained by the use of documents, content systems, subject matter experts, professional trainers and the way related data is collected through forms and checklists. Our blueprint explains how to deliver true cognitive diversity from the quagmire of regulatory and procedural complexity, volume, and the way rules are subjected to more and more change.



The Catalyst for Change – A Burning Platform

The post Brexit period starting from the 1st February 2020 will lead to monumental change impacting the very fabric of UK's regulatory and procedural rules, which affects every individual and organisation. These nation state rules have a far reaching effect across the world as they impact every government and business that want to import products and services to the UK. Conversely, the complexity and volume of rules expand considerably for the UK government and businesses that want to export to the EU and other countries around the world. Post Brexit is a catalyst for change to the highly complex system of regulation and procedural rules. As a catalyst it provides the '*burning*' platform for a new generation of rule-based knowledge services both nationally and internationally to emerge.



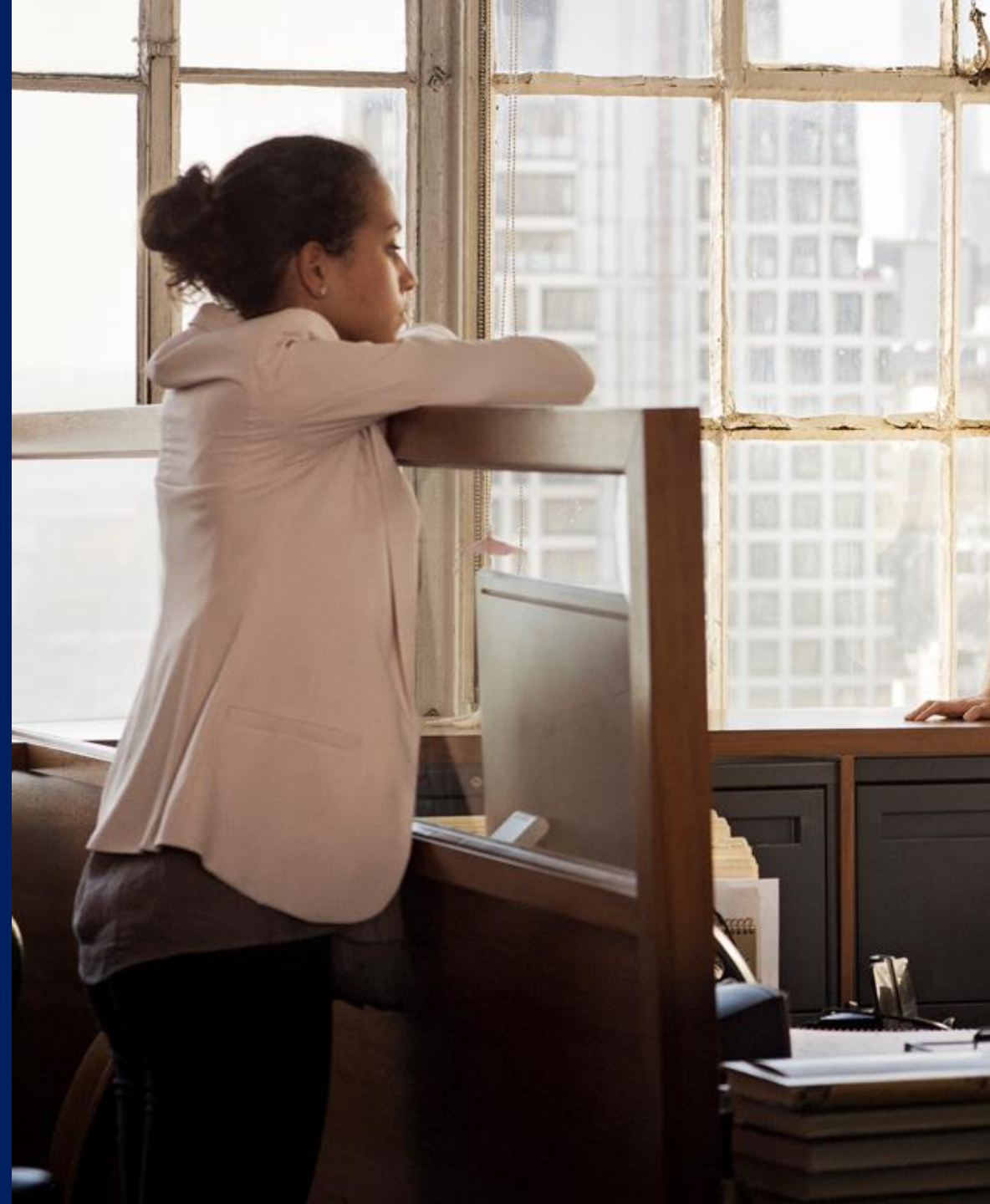
Encode, recall and apply rules from human memory

Although the whole system of regulation, covering what is documented, is not fit for purpose when deployed in practice, there is a common belief that professionally-based training compensates for these inherent weaknesses. This belief system assumes that the outcome of training enables regulatory rules to be encoded into human memory, regardless of the complexity, volume and the rate of change. Using training to encode rules into human memory is potentially workable for frequently, repeated tasks involving a bounded set of simple rules. But, looking at regulation from a holistic perspective, the notion that humans can retain, recall and apply accurately all the permutations of rules in context to any given situation is simply untenable. This line of thinking challenges deeply entrenched convention, however the advances in technology means for the first time a more balanced and realistic approach is available. Rethinking regulatory and procedural rules applied in practice is now a strategic imperative.



A deep dive use case covering a tiny fraction of rules

Under current regulations of England and Wales there are 21 Acts of Parliament and 2 Statutes related to Child Protection covering publications from 1970 to 2017, with cross-references to each other and other documents. These rules impact over 200,000 public and private sector organisations. The translation of these rules into procedures and the training, costs the economy in excess of £5bn. For example, an Academy paid lawyers £25,000 for a 17 page procedural document, which takes on average 32 minutes to read. There were 9 major categories of abuse each containing rules for triggering a possible child abuse case. The regulations cover a diverse range of subjects including drug abuse, radicalisation and county line gangs. The Department of Education reports the statistics annually (lag indicators) with around 30% recorded as false positives. The synthesis started with the Academy and was enriched with knowledge from other organisations such as a premier league football club and a religious primary school. The human interaction with the encoded rules masked the complexity covering 64 distinctive outcomes. More accurate decisions were achieved within minutes, with a full audit trail for compliance and analytics.



Our Universal and Unifying Tool

One of the primary goals to encode regulation is to understand the variety of subject matters in a unified way. It is for this reason, regulatory rule-based knowledge is best expressed in a formal logic language. This is because it is the only way to provide sufficient semantic clarity to ensure reproducibility and the free exchange of regulatory knowledge. We have developed a universal and unifying tool aimed at synthesisers, who have the means to translate regulatory and procedural knowledge into working and measurable assets. The use of a symbolic, formal language means all regulatory rules, regulatory information, regulatory meaning, and regulatory intelligence can be encoded. Our tool is underpinned by a no-code platform that generates Agent-Based Model software. This empowers human interactions to navigate the step-by-step journey based upon their decisions, whilst masking the complexity of the regulatory fabric. During the user decision journey, the agent can request data input in context to the granularity of the interaction. This capability enables the convergence of rules and data input to be simplified and streamlined, replacing the traditions of data input forms, questionnaires and surveys. Every interaction is recorded for compliance and analytics, which generates new types of hindsight, insight and foresight.

Technology Landscape

1. Encode Regulatory and Procedural Rules



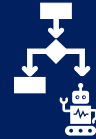
Tool to create rule-based modules, each containing a Knowledge Map using a universal symbolic language and narrative.

2. Cloud No-Code Platform – Publish Software



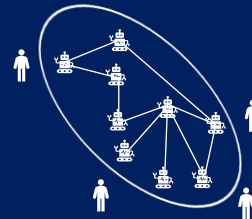
Automatically generate Agent-Based Model software from a single Knowledge Map for human interaction.

3. Dynamic Linking of Agents



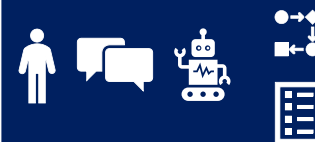
Tool to dynamically link a Knowledge Map to another Agent-Based Model, enabling automated pass through to another module of knowledge.

4. Ecosystem of Agent-Based Models



Create an ever growing ecosystem of agents to manage the complexity, volume and rate of change for rule-based knowledge. Each agent is directly accessible by a human or another agent.

5. Human and Agent Interaction



The Agent guides the human through the contextual pathway to reach the appropriate outcome, whilst masking complexity. Data input can be collected in context to the journey.

6. Transparency and Traceability



The audit trail provides the compliance evidence of the user decision journey and the data for analytics, thereby generating hindsight, insight and foresight.

Financial Benefits

The encoded regulations and procedures represent an ever improving golden source of rule based knowledge delivering financial benefits to both the private and public sectors, across all industries and their stakeholders: 1) increase self-service and self-sufficiency for greater productivity at low or zero cost; 2) reduce costs and risks of false positives and false negatives; 3) safeguard the brand, balance sheet and people mitigating costly legal costs and provisions; 4) reduce the cost of compliance and other forms of checking; 5) collapse the cost of forensic investigations; 6) reduce the costs of professional based training; 7) reduce the costs of subject matter experts; 8) enable a more agile and adaptive workforce and wider community; 9) new income opportunities by providing regulations as working and measurable knowledge assets; 10) new income from new forms of business intelligence; 11) reduce systemic risks at scale across markets.



Non-Financial Benefits

As with any paradigm shift, significant other socioeconomic benefits can be realised:

- 1) stronger and more manageable governance;
- 2) consistency is assured;
- 3) shifting from lag to lead indicators;
- 4) sensing early and responding quickly to errors, improvements and issues;
- 5) breakdown organisational intra and inter silos;
- 6) reduce the risk of knowledge being lost from the organisation;
- 7) enable instant upskilling;
- 8) mask regulatory complexity through human interactions;
- 9) transform forms, questionnaires and surveys that are linked to regulations;
- 10) have a compliance record providing deep transparency and traceability;
- 11) use audit trail as part of a contract to prove customer or partner understanding;
- 12) accelerate the growth of learning at the edge;
- 13) enrich and expand the boundaries of knowledge;
- 14) manage increasing complexity;
- 15) achieve shorter cycles of improvements;
- 16) gain better hindsight, insight and foresight;
- 17) stimulate new value creation;
- 18) gain emergent evidence for institutional and wider market changes;
- 19) see a market shift from treating knowledge as an intangible to a tangible asset.



The Skills Gap

Rule-based knowledge involves synthesising, interacting and measuring rule-based knowledge. Synthesisers require transdisciplinary capabilities to orchestrate the knowledge from any variety of sources. The skills required, are the ability to modularise, map and test rule-based knowledge in the form of clear conditional logic structures for choices, pathways and outcomes, underpinned with step-by-step narrative. The modulization of rule-based knowledge requires coordination with other synthesisers for dynamic linking with each other's modules, when and where appropriate. Using our no-code platform, each module is generated in the form of interactive Agent-Based Model software for deployment across the digital touch points required for human interactions. In addition, synthesisers require data analytical skills to understand emergent patterns from human interactions, to enrich and extend the boundaries of knowledge leveraging hindsight, insight and foresight.



Consultants become the market makers

The lack of transparency, traceability and measurements to the way regulatory rules are applied in practice has cultivated a global phenomenon that is best described by the metaphor of “boiling the frog slowly” – in other words the inability or unwillingness of people to react to or be aware of ominous threats that arise gradually rather than suddenly. This cultural chasm between perception and reality is best bridged through consultancy led change. Inevitably, consultants are best able to overcome any deep rooted cultural resistance such as unlocking and encoding the required knowledge from subject matter experts or plugging any knowledge gap that may emerge. Just as importantly, consultants have the skills for: 1) Board and Executive strategic and tactical advice, including thought leadership; 2) analysis, synthesis and orchestration; 3) golden source management; 4) risk mitigation; 5) change management; 6) ability to reach and build consortiums; 7) new value creation; 8) consultation with the regulators; 9) leveraging the continuous intelligence for hindsight, insight and foresight. In addition, there is an opportunity for consultants to develop regulation-as-a-service as a new sustainable, subscription revenue stream that has the potential to become part of their core business.



The Post Brexit Catalyst for Blue-Sky Opportunities

Though there is a national single source for regulations, the general belief is that each organisation must do things differently. Every public and private organisation, regardless of size, has to 1) identify the regulations relevant to their business; 2) synthesise these regulations into procedural documents; 3) ensure every person is trained and familiar with these procedures; 4) ensure the latest procedures are being used; 5) maintain the version and distribution of these documents. But this entrenched belief system can be surely challenged. The absence of measurements means it's not manageable, resulting with fragile governance and systemic weaknesses. Using a 'hierarchy of rules' framework, regulation (including statutes, case law etc) takes precedence over any other type of rules. Using this sense-making framework then regulation rules ought to be synthesised once for all public and private organisations, regardless of size. Once regulatory rules are synthesised and encoded this becomes a golden source, which is delivered as a utility-based service. Though this is a blue-sky opportunity, the convergence of highly scalable technology and the post Brexit catalyst for change, signifies the time has come for this idea to rapidly deliver far reaching socio-economic benefits for every individual and organisation.



Encoded Regulation and Procedures Golden Source for Rule-Based Knowledge

