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Democratizing Artificial Intelligence for GDPR and Regulatory Compliance

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Regulatory compliance is costly, but non-compliance is even more costly. Complexity reigns, as regulatory guidance is not contained in any single source of truth. This article examines the potentially enormous socioeconomic benefits of digitizing regulations and reimagining the market that surrounds the regulatory industry, through the use of data, Artificial Intelligence and other means.



The cost for applying regulation in practice is much too high

An Australian in-depth study by [Deloitte](#) estimated that it costs 94 billion AUD to administer and comply with Australian federal, state, and local government rules. This equates to about six percent of Australia's GDP (Gross Domestic Product). The equivalent annual cost of regulation to the UK economy is 170 billion, for the US economy 1.286 billion and for the world economy the cost is the equivalent of 5.236 billion (in US dollars).

Non-compliance is three times more expensive

Though these costs are massive, the absence of a scientific approach to regulations and the way they are applied in practice probably means the true socioeconomic costs are materially underestimated. The lack of a universal measurement means to gain insight of the broader socioeconomic effect currently requires examination of targeted subjects within the regulatory landscape.

For instance, let us examine the additional regulatory costs in the form of non-compliance to data regulations. A [study](#) undertaken of 53 multinational organizations in 2017 by the research firm Ponemon Institute found that the average annual corporate cost for non-compliance to data regulations was 14.8 million (US dollars), with the upper end being 39.2 million. These non-compliance costs had increased by 45 percent over a five-year period. This study also found that the non-compliance costs were 2.71 times more compared to maintaining or meeting compliance requirements.

These findings were prior to the [EU GDPR](#) going live on the 25 May 2018, which has resulted in upward pressures upon non-compliance regulatory costs, as the maximum fine is four percent of annual global turnover or €20 million, whichever is greater. In 2019, [Google was fined](#) €50 million for a GDPR infringement and their subsequent [appeal was dismissed](#) by France's top court for administrative law.

Even greater non-compliance costs can be found in the financial sector. Banking non-compliance pay-outs amounted to 264 billion GBP for the top 20 banks from 2012-16 ([32 percent higher](#) vs 2008-12), which included fines, legal bills and the cost of compensating mistreated customers.

Non-compliance costs are expected to increase as regulatory volume, diversity, complexity and the rate of change accelerates. For example, during 2017 there were 56,321 regulatory alerts from more than 900 regulatory bodies worldwide, averaging 216 updates a day, according to [Thomson Reuters Regulatory Intelligence](#). These upward pressures upon regulatory costs will be amplified through the contracting of global GDP expected to be circa 5.2 percent in 2020 caused by Covid-19 (source [World Bank](#)).

Systemically broken

The traditional way governments write and distribute rules for use by citizens, businesses, other private actors and for the institutions of government is through paper-based documents. This requires every individual and every organization to interpret relevant rules, leading to widespread misunderstandings and inconsistencies. The fragmented nature of this problem is further compounded as paper-based documents, including their representation on web content, are an unsuitable medium for writing, reading and understanding algorithms, the very rules that represent choices, pathways and outcomes. A recent study has come to a similar conclusion.

The UK government arranged for an independent investigation into the way paper-based building and fire safety regulations are applied in practice, in the aftermath of the tragic loss of 72 people in the [London Grenfell Tower Fire](#). This investigation was led by Dame Judith Hackett, [who stated](#): ***“As the review has progressed, it has become clear that the whole system of regulation, covering what is written down and the way in which it is enacted in practice, is not fit for purpose, leaving room for those who want to take shortcuts to do so.”***

These findings could easily apply to all regulations across the world. Though the implications are profound, the sheer scale of the socioeconomic effect is not well understood.

For example, child abuse impacts around [40 million children](#) a year. The UK is a leader in child protection regulation. But how is this still represented in paper-based documents? In 2019, UK

child protection regulation involved 21 Acts of Parliament and two Statutes spread over a period from 1970 to 2017. This means over 200,000 organizations involved in safeguarding children in the UK; each needs to contextually synthesize the regulation spread over 23 documents into practical procedures. Not only is this costly and time-consuming for each organization, the actual translations result in many versions of the truth.

Now examine one element of this regulation, identifying possible child abuse in context to *“those who want to take shortcuts to do so”* could be catastrophic.

As paper-based documents and their web content equivalents cannot be measured in the way they are applied in practice, in identifying possible child abuse the government must manually collect data. Once a year, the government publishes child abuse statistics, which are underpinned by data whose quality cannot be assured. The dependency upon such weak lag indicators inhibits governments’ capabilities.

Regulatory inequality is pervasive and unacceptable

Paper-based documents are an unsuitable medium for helping people to understand and apply regulation in practice. The use of these documents, though, has cultivated over a long period of time a huge ecosystem of professionals that translates the regulation for practical application. These intermediaries are lawyers and consultants who ironically often translate the regulations into paper-based procedures. Naturally, those organizations with the deepest pockets can afford tier 1 lawyers and consultants. However, at the other end of spectrum, inequality is disproportionately hitting those that cannot afford the costs of these intermediaries. Consequently, due to a lack of understanding when it comes to regulations, many people and organizations are at a serious disadvantage.

Regulatory inequality is fundamentally wrong yet is pervasive in every country around the world.

Regulatory equality is a level-up strategy

The digitization of regulation is the means to achieve regulatory equality. This is a paradigm shift towards a single source of truth, which is the only means to level up at scale the way regulation is understood and applied in practice, while marginalizing misinterpretation, disparities and non-compliance.

As regulatory digitization requires new technology and methods, it is equally important to dispel popular alternatives.

Regulatory equality cannot be achieved through training

This is because human memory cannot accurately recall and apply the volume and diversity of choices, pathways and outcomes, made more difficult through irregular use and regulatory change.

Regulatory equality cannot be achieved through artificial intelligence

This is because Artificial Intelligence machine learning cannot be empowered to upend and change regulatory rules.

Regulatory equality cannot be achieved through software code

This is because software code: 1) has upper limits in the number of permutations that can be codified; 2) cannot guarantee absolute accuracy to the requirements specification; 3) becomes more difficult to change as programs become more complicated; 4) and is difficult to understand by those with the regulatory knowledge.

Regulatory equality cannot be achieved through processing data

This is because regulatory paper-based documents are not organized databases suitable for machine processing as they are in the form of narratives interspersed with rules.

The innovation challenge for delivering a single source of regulatory truth

This requires simplicity to encode regulatory volume, diversity and complexity at scale, and once published as a single source of truth, all interactions are simplified and streamlined, generating new data for continuous intelligence, so that the evidence is used to enrich and extend the codified regulation, as required.

New tools and new methods to digitalize regulations

Imagine representing this landscape as an ecosystem of simple, independent programs each containing a codified Knowledge Map representing nonlinear logic and narrative. Within the nonlinear map, any pathway may traverse to another Knowledge Map enabling any permutation of complexity to be codified. Once the Knowledge Map is complete, an automated no-code process builds a stateless Digital Agent for access from any digital touchpoint or application, while ensuring changes can only be applied to the Knowledge Map. This means the single source of the regulatory truth is assured. The Digital Agents provide a step-by-step guide for human interaction that is simplified and streamlined, masking regulatory complexity. The capturing of the step-by-step interaction delivers continuous intelligence and a transparent audit trail. This data is in the form of a one-dimensional string of varying length as it contains every step of the decision journey. Using this emergent real-time evidence, Artificial Intelligence can be used to advise human intelligence where best to enrich and extend the Knowledge Maps.

The power of simple programs is not new, as it was pioneered by [Stephen Wolfram](#) in his world-renowned publication called “A New Kind of Science” as a more natural solution to handle complexity. Knowledge Maps as simple programs can be developed and ready for testing within hours. Just as importantly, they can be developed in parallel, enabling scalable mass production to tackle the sheer volume of regulation.

These new tools and methods exist today as they leverage Microsoft's [Intelligent Cloud](#), Intelligent Edge infrastructure with its complementary mission to “empower every person and every organisation on the planet to achieve more.”

The trillion-dollar regulatory opportunity

A market is emerging as at least 17 governments are exploring the way to digitalize regulations with initiatives led by a consortium called [Digital Nations](#) and more recently by OECD's Observatory of Public Sector Innovation (OPSI) with a paper called [Cracking the Code](#).

Consider the opportunity: the repurposing of billions of dollars per year through the digitalization of regulation is a new industry enabling new jobs, new opportunities and new income for both governments and commercial firms delivering the services. The socioeconomic benefits are potentially enormous, including regulatory equality for all, based on a single source of truth to safeguard society, individuals, organizations and the environment.