

A new normal in RegTech – how to ensure regulatory compliance in an automated way

A joint case study between PPI and HARPOCRATES with focus on audit relevant regulatory aspects

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With rapid and fast-moving changes the world becomes more complex – especially in compliance. The dedicated MaRisk function among others is heavily burdened with a lot of manual tasks through the entire lifecycle of regulation and associated compliance. This lifecycle starts with the regulatory monitoring, followed by the analysis of the affected areas and departments, identification of gaps and a risk assessment, and continues with a plan to review the actions to be taken which are finally reported in an audit-proof way. As PPI advise clients throughout the entire MaRisk compliance life cycle and implements state-of-the-art technology, technology is already used with regards to regulatory monitoring, and shows significant efficiency gains. The following white paper describes the tremendous progress made especially in the analysis phase of the lifecycle by using AI (Artificial Intelligence) and NLP (Natural Language Processing) in a time and cost-efficient way. This is an essential step when it comes to further automatization of the full cycle from the initial monitoring of law to application and reporting.

The world of today shows that regulatory complexity increases dramatically at high pace. With new and constantly changing regulations and laws, companies struggle heavily to keep up-to-date in order to become and remain compliant.

A lot of manual work is necessary in context of compliance, therefore regulatory compliance has become one of the main drivers for exploding costs. We observe an increased need for external advice and support to identify and assess the relevant regulations for the respective business processes.

Before any of the regulations are applied to systems and processes, a lot of cognitive work has to be put in to understand which are the affected business units, IT areas, systems and processes.

Fortunately, innovative RegTech solutions are about to mature and becoming available for covering various aspects of the life cycle of regulatory requirements. PPI for example has concluded several reference projects with regards to analysis, review and control of regulatory amendments, such as the efficient management of regulatory changes in the light of the MaRisk compliance function and the implementation of a RegTech solution with regards to an internal control system. With the increase of complexity technology plays a vital role especially with regards to scalability. The collaboration with HARPOCRATES helps to figure out the right mix of technology and consultancy for becoming more efficient.

What if you could ensure regulatory compliance with a minimum of manual effort and external support?

With the latest advances in AI (Artificial Intelligence) and NLP (Natural Language Processing) technology to process immense amounts of data efficiently within short timeframes, these technologies are finally becoming available for applications at low costs. Players adopting these solutions early can significantly reduce the total costs associated with ensuring continuous regulatory compliance and gain a significant competitive advantage through early technology adoption.

HARPOCRATES and PPI have evaluated together the technology for text mining, text analysis and interpretation and the HARPOCRATES application to support and improve the process of identifying relevant documents and text passages in the regulatory jungle for specific business use cases. The possibilities for the use of the HARPOCRATES product reaches from the identification, filtering and assignment of regulations to automated reconciliation with existing controls and process descriptions resulting in gap analysis and defining mitigation measures in order to accomplish full compliance with the regulations in scope.

The technology is already there and can add significant value in compliance

In 2021, almost a third (32%) of senior decision makers in financial institutions predicted the total cost of ensuring regulatory compliance will be greater than 5% of their revenues⁽¹⁾. These costs result mainly from labour-intensive, manual processes for screening, understanding and deriving measures and obligations. The following steps describe what needs to be performed in order to ensure permanent compliance with existing and upcoming laws and regulations:

- Screening and monitoring of laws and regulations,
- Identifying affected business units and determining which departments involved in changes,
- Implementing necessary changes to IT systems, governance structures and/or processes,
- Updating policies, procedures and controls to ensure they keep being effective and operational while covering the required scope,
- Providing evidence of compliance to internal and external auditors and in response to supervisory assessments.

Given that financial service providers have to ensure compliance with all regulatory and legal aspects, the above mentioned tasks have to be performed on a regular basis and repeated with each cycle of new/updated regulations. Due to the increasing amount and relevance of changes, already in 2012 the compliance function has been strengthened with the introduction of a dedicated MaRisk compliance function. However, many organizations face a lot of challenges to define effective and efficient procedures, including monitoring, control and review processes.

Ensuring compliance with regulations supported by AI – Joint PoC from PPI and HARPOCRATES shows promising results

Addressing the challenges described above, PPI and HARPOCRATES jointly constructed and evaluated a PoC to improve workflows with the following objectives:

- Reduction of time to process regulatory documents, dispatch documents to affected departments, identifying obligations and deriving controls by applying AI and NLP to laws and regulations,
- Quantification of the productivity gains by applying the HARPOCRATES AI/NLP based RegTech solution to automatically process regulatory guidelines, extract obligations and automatically categorize extracted obligations for dispatching and further processing,

- Evaluation of the accuracy achieved by AI technology in extraction and processing of text; and
- Determine whether AI and NLP can provide cost savings related to point 1 as well as the reduction of end-to-end processing time from publication of new guidelines to the definition of adapted and enhanced controls and IT implementations.

As target objectives for this PoC were chosen the “EBA revised Guidelines on outsourcing arrangements”, EBA/GL/2019/02”(2) as well as the “EBA’s Final draft Guidelines on ICT”(3). Training of the HARPOCRATES algorithm has been performed by using previous results of an examination of these guidelines which PPI had performed for an international client showing its compliance with EBA guidelines on ICT and security risk management.

For the examination, the guideline was deconstructed into parts which could be mapped to different regulatory aspects (governance, IT-security, documentation, ...) in order to define corresponding obligations and measures. Since there is room for interpretation for each aspect what is needed to fulfill the corresponding obligation, further refinement is needed. Firstly, the essence of the guideline and what the supervisory authority wants to achieve needs to be understood.

Secondly, it is necessary to work out how proof can be provided best based on a customers setup. In the last step, the corresponding internal documents are mapped to the guidelines to prove compliance and identify potential gaps.

The procedure described above is quite time-consuming. Even with trained, expert staff in this domain the process can take an analyst more than a week for a relatively comprehensive document like the EBA guidelines. It would take even longer if the volume of documents and/or the set of regulations is even larger. Moreover, it is rarely trivial and may have to be supported by different experts depending on the set of rules and the corresponding topic.

Training the model with auditor annotations improves the category tagging accuracy and shows potential of what could be learned from existing compliance documentation

Already from its base concept, the core engine of HARPOCRATES monitors regulatory documents at the source, extracts obligations from the text and categorizes the documents for further processing.

Even with a less trained model the accuracy of the category tagging, and the extraction of obligations, already reached 73% for the EBA Outsourcing Guideline and

64.1% for the ICT Security Guidelines. For the PoC, HARPOCRATES used PPI's practical experience from the reference project as a prime example to centralise and automate these compliance processes.

Therefore, already after the first iteration, it was possible to increase the level of accuracy significantly, both for the category tags and the recognized and extracted obligations. Added value could be in particular generated via the adapted model and thorough document maintenance. The accuracy for the category tagging and extraction of the obligations was finally increased via training of the AI language model from 73% to 93.1% for the EBA Outsourcing Guideline and from 64.1% to the 95.4% for the ICT Security Guidelines

With additional training of the language model the accuracy achieved could even be increased to astonishing 93.1% respectively 95.4%.

The language model training caused significant improvements in the automatic categorization of obligations reaching above 99% accuracy and thereby outperformed traditional manual categorization efficiencies. Putting these improvements in context with the significant processing time reduction of more than 99% proving that the expected value that can be created from adoption of these methods is massive.

With digital transformation initiatives already being one of the main drivers for change in financial service industry, the need to address inefficiency due to manual processing of laws and regulations is becoming even more pressing.

With the need to process more and more regulations in all industries, for example Basel III/IV in the financial

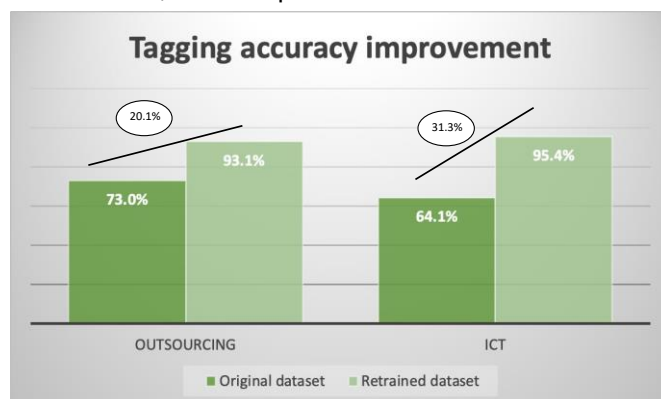


Figure 1 – Category tagging improvements achieved

sector, but also UNECE in the automotive industry or any other industry facing compliance or regulatory pressure the HARPOCRATES engine can provide massive time and cost reductions with the automatization of monitoring and processing regulatory documentation as described. With the automatization of the identification of affected departments, extraction of obligations and definition of controls compliance becomes again a task to be tackled in acceptable time and at lower costs.

A defining factor for success is finding the appropriate ontology for your regulatory needs and knowing how to apply it

Automated text analysis – natural language processing and understanding – is already applied to a broad spectrum of use cases. An ontology allows to represent domain-specific knowledge in a machine-readable format. Fed with data using NLP techniques, they offer a maximum of flexibility in how to access and utilize the stored data. Its versatility is especially appreciated, when the input is highly unstructured, like legal text data sources. HARPOCRATES builds its own ontology which is fed with highly specific financial regulatory knowledge but also leveraging public knowledge ontologies. This allows a high flexibility to adapt new use cases and also enables holistic service applications in highly specific areas of implementation.

Used in the context of the financial sector and proven by the results achieved by the joint PoC presented here by PPI and HARPOCRATES the possibility for significant productivity gains through application of NLP for regulatory use cases becomes tangible. Using the HARPOCRATES product processing times could be reduced by over 80% thanks to refined category tagging and subsequently improved accuracy of obligation extraction. This led to an overall higher level of compliance with the regulation in scope. In addition, a positive impact on data quality can be achieved.

Based on the current results, three use cases have been identified:

- Pre-assessment of new regulation and regulatory amendments,
- Pre-screening of relevant documents in the light of upcoming/changed regulation,
- Completeness-check of all necessary amendments in order to comply with upcoming/changed regulation

All three use cases would in particular support the MaRisk Compliance function which is under pressure to channel new regulatory changes into the departments where actions have to be taken. Once the relevant departments and action owners have been identified a lot of time is currently spent in a manual process to screen all relevant documents. Due to the massive amount of data even a thorough manual check does not guarantee completeness and therefore invites for potential regulatory oversight.

This clearly shows that with the help of technology speed, accuracy and completeness can be significantly improved to let affected employees focus on what really matters, i.e. strategic focus and quality of documentation.

In the future, HARPOCRATES is optimistic that it will be possible to automate the entire manual process described above and - of course – also scale it to include regulations in different industries.

Together we create a customized solution for your specific regulatory requirements

PPI and HARPOCRATES continue working together on the further improvement of the language model to address more complex use-cases in partnership with customers in the financial sector. HARPOCRATES' Compliance-as-a-Service platform provides the foundation to improve the process of achieving initial and recurrent compliance – starting from the monitoring of latest developments in laws and regulations to the automated reconciliation against existing compliance controls and gap identification and reporting.

Quellen/Links

- (1) <https://www.kroll.com/en/insights/publications/financial-compliance-regulation/global-regulatory-outlook-2021>
- (2) <https://www.eba.europa.eu/sites/default/documents/files/documents/10180/2551996/38c80601-f5d7-4855-8ba3-702423665479/EBA%20revised%20Guidelines%20on%20outsourcing%20arrangements.pdf?retry=1>
- (3) https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Guidelines/2020/GLs%20on%20ICT%20and%20security%20risk%20management/872936/Final%20draft%20Guidelines%20on%20ICT%20and%20security%20risk%20management.pdf

HARPOCRATES is offering a Compliance-as-a-Service platform which provides an automated technology stack based on AI (Artificial Intelligence) and NLP (Natural Language Processing) to convert laws & regulations into digital rules to be implemented in the customers environment. This platform is industry and use-case agnostic and can be leveraged for all kinds of compliance e.g. financial sector, GDPR or ESG/sustainability. With this CaaS platform customers become and remain compliant by design and permanently in an easy and cost efficient way.

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