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RegTech and SupTech: Implications for Supervision

Report of the A2ii – IAIS Consultation Call

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The Consultation Calls are organised as a partnership between the Access to Insurance Initiative (A2ii) and the International Association of Insurance Supervisors (IAIS) to provide supervisors with a platform to exchange experiences and lessons learnt in expanding access to insurance.

Introduction

Supervisory Technology (SupTech) is a subset of Financial Technology (FinTech)[1] that uses innovative technology to support supervision. It helps supervisory agencies to digitise reporting and regulatory processes, resulting in more efficient and proactive monitoring of risk and compliance at financial institutions. SupTech refers to technology deployed by regulators to support supervisory activities[2]. On the other hand, RegTech is used in reference to technology deployed by insurers to support their regulatory compliance – "Regulatory Technology is a subset of FinTech that focuses on technologies that may facilitate the delivery of regulatory requirements more efficiently and effectively than existing capabilities"[3].

On this consultation call, Anatol Monid, expert from the Toronto Centre delivered an in-depth overview of the topic in the English calls while Andrea Camargo presented the Spanish call. They were joined by Jermy Prenio and Denise Garcia of the Financial Stability Institute (FSI) who highlighted key findings from FSI Insights Paper No. 9 "Innovative technology in financial supervision (suptech) – the experience of early users". The following authorities also shared experiences from their jurisdictions: Peter Thomas from The Bank of England (BoE, UK) and Todd Sells from the National Association of Insurance Commissioners (NAIC, USA) highlighted their jurisdictions' regulatory and supervisory activities around RegTech, SupTech and FinTech.

1 FinTech and InsurTech are terms that are commonly seen in regulation and supervision. Financial Technology (FinTech) refers to "Technologically enabled financial innovation in the financial services" that could result in new business models, applications, processes, or products with an associated material effect on financial markets, institutions and the provision of financial services (Financial Stability Board (FSB), 2017). InsurTech: The variety of emerging Insurance Technologies and innovative business models that have the potential to transform the insurance business. InsurTech crosscuts a variety of areas in the insurance field such as Usage-based Insurance, Health Insurance, Agency or Brokerage management, e-Commerce Insurance, Spot or On-demand Insurance, or Peer-to-Peer Insurance (International Association of Insurance Supervisors (IAIS), 2017)

2 Bank for International Settlements (BIS), 2018

3 Financial Conduct Authority (FCA UK), 2015

RegTech and SupTech: Implications for Supervision

Presentation by Anatol Monid

RegTech and SupTech tools and applications offer solutions that streamline and automate w supervisory and regulatory activities[4]. The uses of RegTech include the following:

- Dynamic compliance – Offers solutions for identifying and keeping track of changes in regulatory requirements, where supervisors can conduct automated real-time monitoring and assesment of compliance levels and compliance risk based on the analysis of operational and other data.
- Identity management and control – Applied in anti-money laundering (AML) controls and fraud detection, in addition to Know-Your-Customer (KYC) procedures.
- Risk management – For efficient generation of risk data, risk data aggregation, internal risk reporting and automatically identifying and monitoring risks according to internal methodologies or regulatory definitions. In addition, creating alerts or triggered action at pre-determined levels.
- Regulatory reporting – Routine regulatory activities can be automated to cut costs.
- Transaction monitoring – Focuses on conduct-of-business requirements and offers real-time transaction monitoring and auditing, such as by using end-to-end integrity validation, anti-fraud and market abuse identification systems.
- Trading in financial markets – Automation of procedures related to transacting in financial markets, such as calculating margins, choosing counterparties and trading venues, assessing exposures as well as complying with conduct-of-business principles.

On the other hand, supervisors can use SupTech in the following ways:

- Data-input approach – Reporting institutions can automate the collection of data in a standard and highly granular format according to specifications by the supervisory authority and send it to a central database.
- Data-pull approach – Using automated processes triggered and controlled by the supervisor, to collect and standardise raw business data directly from the institutions' operational systems.
- Dynamic, predictive supervision – Taking supervisory actions in a preemptive manner based on predictive behavioural analysis.

4 Key references:

- FinTech, RegTech and SupTech: What they mean for financial supervision (Toronto Centre Notes, 2017)
- SupTech: Leveraging technology for better supervision (Toronto Centre Notes, 2018)
- FinTech Developments in the Insurance Industry (IAIS, 2017)
- FSI Insights on policy implementation No. 9, "Innovative technology in financial supervision (suptech) – the experience of early users". Dirk Broeders and Jermy Prenio (FSI), 2018

- Real-time access – Supervisors can pull or "see" operational data at will (rather than at pre-determined reporting periods) by directly accessing the institutions' operational systems, which could include monitoring transactions in real-time basis.
- Reporting utilities – For reporting utilities, i.e. centralised structures that function not only as a common database of reported granular data but also as a repository of the interpta-tion of reporting rules, in a format that is readable by computers i.e. "semantic reporting utility".
- Gathering intelligence from unstructured data – Collection and analysis of unstructured data with greater efficiency, which could relieve supervisors from time-consuming tasks such as reading numerous PDF files, searching on the internet, etc.
- Regulatory submissions and data quality management – Fully automated procedures to manage submissions by reporting institutions and manage the quality of the reported data, including running validation tests.

Regulatory changes continue to drive the deployment of RegTech and SupTech tools by supervisors. With advancements in technology, it is inevitable that supervisors will face key challenges and benefits when adopting RegTech and SupTech. Below are some of the challenges and benefits:

› Challenges and Benefits of Implementing SupTech:

Challenges

- **Data quality issues** – Complexity in analysing or validating Big Data collected from non-traditional sources of information such as social media data.
- **Legal risk** – Supervisors need to be aware of existing data protection laws in their jurisdictions given the continuous data collection and availability of more data from alternative sources,
- **Operational risk** – More data means that firms and supervisors have become a greater target for hacking and might require stringent cybersecurity measures in place to detect any forms of breaching.
- **Reputational risk** – Improper validation of data by SupTech applications e.g. failure of algorithms may lead to misinterpretation and possible wrongful supervisory actions. This may affect the reputation of both the firm and the supervisor.
- **Resource issues** – Supervisors may face budget constraints lack of skilled personnel to deploy SupTech applications. If such data remains unused, insurers might raise issues of regulatory burden.

Benefits

- **Exceptions-based supervision** – Automated checks on institutions' data and other information automatically collected and analysed for the identification of "exceptions" or "outliers" to pre-determined parameters.

- **Automated implementation of supervisory measures** – Sending an automatically created direction for capital increases based on automated data analysis, and decision-making.
- **Algorithmic regulation and supervision** – Can be used for oversight of high-frequency trading, algorithm-based credit scoring, robo-advisors or any service or product that automates decision-making.
- **Efficiency** – Can reduce compliance costs for the regulated entity and enhance risk management to improve marketplace stability and effectiveness. Regtech can minimise different interpretations of rules and enhance timeline management.
- **Supporting innovation** – Many regulators' mandates include the promotion of innovation. Through the identification of appropriate technologies, supervisors may help firms better manage regulatory requirements.
- **Real-time supervision** – Supervisors can monitor data as it is created in the regulated institutions' operational systems.

› Challenges and Benefits of Implementing RegTech:

Challenges

- **Understand the firm's readiness position** – Important to understand the firm's market position or expertise, determine the strategy, road map and senior level "buy-in" as well as identify the relevant compliance and reporting elements that can benefit from automation.
- **Existing regulatory compliance** – Need to clarify compliance risks, complexities and resulting requirements in order to implement RegTech. The design and delivery of an integrated framework is fundamental, including standardised taxonomy for risk mapping and monitoring.
- **Upcoming regulatory data and reporting requirements** – Supervisors need to have a clear understanding of the existing and emerging regulations that impact the business.
- **Skilled resources** – Imperative to have skilled personnel to deliver services and manage change
- **Lack of a common position amongst regulators** – Lack of a clear position from the regulators on solutions and standards due to different data protection regimes. Regional variations, as well as inter-regulatory conflicts can lead to uncertainty and inefficiency.
- **Technological change** – Adopting RegTech solutions involves high costs and need to be carefully considered. The choices of the approach or solutions for the implementation may vary by each player. Standards and solutions used in the past can become obsolete.

Benefits

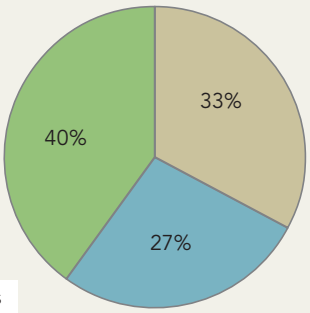
- **Increased revenue for insurers** – Automation solutions can increase competitiveness while increasing customer satisfaction and retention, through faster onboarding and completion of KYC and AML requirements.
- **Reduced costs** – Processes can be streamlined to reduce the number of people that need to check false positives and lowers overall compliance costs.
- **Efficiency gains** – Automation of compliance protocols and reporting allows more time for firms to focus on their strategic goals. Compliance officers are also able to focus on more substantial activities, such as investigating cases.
- **Reduced risk** – When firms can comply with AML, KYC, and the myriad of other requirements more easily, they are less likely to suffer reputational damage, penalties and fines from compliance missteps.
- **Supporting innovation** – Industry participants are developing and adopting RegTech to meet regulatory compliance requirements. Innovative technologies will support firms to develop advanced data analytics capabilities (scenario analytics, trend and horizon scanning), which regulators consider as important tools to improve the quality of risk management.

Examples of initiatives that may support RegTech deployment include the Institutes RiskBlock Alliance which is engaged in promoting blockchain around the world. It is led by different industry players with an initial focus on property and casualty. Another is the B3I consortium which is a reinsurance initiative with a focus on proof of concepts and blockchain best practices, and R3 consortium tackling blockchain solutions that are common across the financial services. A key SupTech initiative is the Global Financial Innovation Network (GFIN) which leverages collaboration with other supervisors to learn, adapt and share technology issues that travel quickly through capital markets, like crypto-currencies.

During the consultation call, supervisors also responded to a quick poll that sought to capture if supervisors on the call have developed any forms of RegTech or SupTech. The questions and responses are as illustrated in the charts below:

Have you developed some form of SupTech in your jurisdiction?

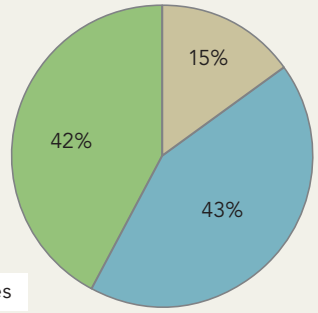
- Yes
- No
- No answer



93 Responses

Do you have oversight of any insurers that have developed some form of RegTech?

- Yes
- No
- No answer



93 Responses

Brief Summary of FSI Insights Paper No. 9

The paper focused exclusively on SupTech with an objective of having a cross-sectoral view of SupTech applications in different areas of supervision. The paper also provided an overview of practical experiences of supervisory authorities[5] that have deployed or are starting to explore SupTech applications in their supervisory work. The figure below highlights how far supervisors have advanced in deploying SupTech applications:

	Supervisory agency								
Supervisory area	ASIC	BoI	BNR	BSP	CNBV	DNB	MAS	OeNB	SEC
Automated Reporting									
Real-time monitoring									
Validation									
Consolidation									
Visualisation									
Virtual assistance									
Machine-readable regulations									
Manipulation									
Insider trading									
AML/CFT									
Fraud									
Mis-selling									
Credit risk evaluation									
Liquidity risk evaluation									
Macro-financial risks									
Emerging risks signalling									
Policy evaluation									
Financial stability									

Note: Experimental stage; In development; Operational

Source: FSI Insights Paper No. 9 (FSI, 2018)

Supervisors are developing SupTech applications with underlined reasons being to enhance effectiveness, reduce costs and increase capabilities.

5 List of organisations interviewed include Australian Securities and Investments Commission (ASIC), Bank of Italy (BoI), Bangko Sentral ng Pilipinas (BSP), BearingPoint, Boston Consulting Group (BCG)/Expand Fintech Control Tower, Central Bank of the Republic of Austria (OeNB), National Banking and Securities Commission (CNBV), Netherlands Bank (DNB), European Securities and, Markets Authority (ESMA), Federal Reserve Bank of San Francisco, Financial Conduct Authority (FCA), Monetary Authority of Singapore (MAS), National Bank of Rwanda (BNR), RegTech for Regulators Accelerator (R2A), Securities and Exchange Commission (SEC), Suade Labs, World Bank (WB), World Economic Forum (WEF)

The publication FSI Insights Paper No. 9, Innovative technology in financial supervision (suptech) – the experience of early users (Broeders and Prenio, 2018) can be accessed directly here

CASE STUDY: USA

The USA case study was presented by Todd Sells from the National Association of Insurance Supervisors

In 1999 – 2000, the NAIC initiated their data-input approach, where the NAIC has a template of data submitted from companies that is stored in their financial data repository database. This formed the basis and foundation for a majority of the regulatory process as well as automated tools that the NAIC developed for regulatory analysis and examination. The NAIC has been modifying, enhancing and improving the data sets as well as the automated tools that they create. However, the NAIC has not updated the actual technology and structure. NAIC is in its experimental stage in terms of artificial intelligence (AI) and machine learning and is working with vendors to, for instance, launch natural language processing applications and cloud computing tools. In terms of structuring large amounts of data that NAIC is receiving from companies, they have initiated a number of projects such as:

- Engaging in an enterprise data governance project that includes a new analytics data warehouse where data will be structured in different formats besides an operational data layer. This will in turn ensure that the data lends itself to different types of AI and machine learning activities.
- NAIC has a scoring tool for regulators which analyses various pieces of data to score companies based on established ranges. This tool is being used in NAIC's explorations with AI and cloud computing tools.

For questions or more information on NAIC activities, please contact tsells@naic.org

CASE STUDY: UK

The UK case study was presented by Peter Thomas from the Bank of England

The Bank of England conducted a proof of concept (PoC) in 2018 to see if machine learning techniques could help them deal with increasing volumes of unstructured firm management information (MI). The PoC proved that machine learning could make it easier to process firm MI, freeing up supervisors' time for more value-add analytical work. The Bank of England is now undertaking a three-year project to implement these machine learning capabilities at scale across supervisory areas.

For questions or more information on The Bank of England activities, please contact Peter.Thomas@bankofengland.co.uk

Questions and Discussion

1. **Can you share more real examples of how RegTech and SupTech are being adopted in other jurisdictions?** Supervisors on the call shared examples of how SupTech is used in their jurisdictions. The Insurance Regulatory and Development Authority of India (IRDAI) endorsed an institution that collects transactional data on many lines of business, to provide inputs to the industry and to the regulator on an ongoing basis. The institution supports the industry by providing industry experience and also supports IRDAI in taking policy decisions. IRDAI also makes use of an IT platform where entities submit reports through the platform with certain amounts of validation. The system allows ad-hoc analysis of data, with certain limitations.

   Another example is in Southern and Eastern Africa where supervised entities use a system to submit regulatory reports.

2. **What are some of the potential challenges with respect to resistance to change by supervisors and supervisory entities?** With continued advancement in automation processes, change is expected. Change management and employee adjustment is important in these processes of adapting to change. One key challenge that supervisors on the call shared is that supervisors may not be accepting of the insurers' technological solutions because the supervisory technological skills may lag behind those of the industry. Another challenge is integrating/shifting current legacy systems to the new regulatory database system. Supervisors also highlighted that it is a challenge to get acceptance or buy-in from employees and middle management in transitioning from a very manual system of supervision to a more technology-based supervision. Furthermore, it is a challenge for supervisors to deal with costs associated with implementing RegTech, particularly for institutions with a lot of legacy systems.

3. **Will the implementation of SupTech/RegTech tools replace onsite inspection and more generally would staff redundancy be a concern?** Such applications might reduce the need for supervisors to perform certain routine onsite activities, as well as transactional type of activities. Supervisors will also be able to easily filter through large amounts of data in order to better target onsite activities, thereby also performing better risk-based supervision. However, SupTech/RegTech cannot replace the good judgement of an onsite supervisor. Supervisors on the call also highlighted that onsite inspection is still necessary for verification of company reports in order to make accurate informed decisions, especially if action needs to be taken – "Data still has to be checked, and that demands people. Also, the highest levels of analysis still will require, I think, people to do it."

4. **Are there any examples of SupTech applications currently being used by supervisory authorities? For instance, BearingPoint, business intelligence tools or database integration tools?** Currently, there are a few off-the-shelf options and supervisors are working with vendors to get what they need as highlighted in the NAIC case study.

5. **Are there any insurance products that make use of financial innovation or FinTech applications for instance, using mobile apps? How do these types of products operate and what kind of products are they?** Generally there have not been many truly new insurance products developed. Changes have emerged in the digitisation of distribution (mobile applications), automated underwriting (using telematics, parametrics or biometrics) or product modification in terms of on-demand or peer-to-peer insurance. When it comes to the routine insurance matters, InsurTech is making processes faster, more reli-able and easier for the consumer. To gain a better understanding of FinTech and products, more information can be found in the IAIS Issues Paper on "Increasing Digitalisation in Insurance and its Potential Impact on Consumer Outcomes" (IAIS, 2018). This issues paper can be accessed directly here.

6. **How can supervisors encourage innovation while ensuring that innovative products introduced in the market are properly regulated, for instance in absence of regulation to regulate such products?** It is important that supervisors develop effective communications avenues with licensees or have a good market intelligence function that supports active information-gathering about products and innovation. Many insurers will communicate about innovative product launches with their regulator in advance. As with any new product, not just those that are technology-based, regulators will need to assess if the product fits with the licensing conditions of that insurer and determine if the product has appropriate consumer protection and fairness elements. If the jurisdiction has product pre-approval requirements, then this process should naturally take place. Measures are also likely available for unlicensed or unapproved products that fall outside the scope of regulations. For instance, many insurance laws prohibit unauthorised insurance activities and provide the regulator with the power to enforce corrective measures, such as cease and desist or compliance orders.

7. **How can regulators deal with entities that offer new technologically driven products but do not disclose the computerised procedures of such products and also try to conceal their systems' operability?** Regulators need to balance between encouraging innovation, protecting consumers as well as the potential drawbacks of new approaches, especially those that may not be apparent at first. Every jurisdiction will likely have its own existing disclosure requirements. In light of new risks arising from the increased use of technology in financial transactions, some may need to be adapted to consider new disclosure requirements. However in order to this it is important to first understand the risks and benefits arising from the use of such technology, and therefore whether intervention is required.

8. **After standardisation of data for evaluation, is it necessary to use a tool or an application to automatically assess compliance with regulations and prevent money laundering?** Information technology and automation are simply tools that support financial institutions and regulators with conducting compliance assessments and implementing preventative measures more effectively. However, their absence does not mean that compliance and anti-money laundering measures cannot be performed effectively using manual operations.

9. **Is it necessary to develop applications or only manage databases with electronic sheets to determine compliance, deviations or non-compliance?** The discussion note "From spreadsheets to SupTech: Technology Solutions for Market Conduct Supervision" (World Bank, 2018) provides more insight on the challenges of data management. This publication can be accessed directly here.

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