

# Use of SupTech and RegTech

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Presentation to Regional AMF Regional **Fintech Working Group (WG)**, 25 November 2020

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# FSB Financial Innovation Network

- Monitors and assesses financial innovation
- Identifies and understands implications for financial stability
- c. 70 members; biannual meetings
- Substantial outreach with the private sector

# Background to the reports

- Published on 9 October
- Commissioned following proposal by 2020 Saudi Arabian G20 presidency
- Follows internal work by FIN on RTST in 2018
- ...and report on BigTech firms' global activities in December 2019
- Extensive surveys and industry engagement...
  - ...and meetings with BigTech firms with significant EMDE business

# Use of SupTech and RegTech



## The Use of Supervisory and Regulatory Technology by Authorities and Regulated Institutions

Market developments and financial stability implications

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- SupTech = innovations to help authorities improve supervision
  - RegTech = innovations by institutions to help meet regulatory requirements



9 October 2020

## Demand drivers

The **digitisation** of reporting and regulatory data could **heighten efficiency** while **increasing operational resilience** for both authorities and market participants.

**Increased automation** could reduce both **operational risks** and **costs** of additional regulatory compliance and supervision.



With the **increased volume** and **granularity** of available data (both traditional and non-traditional) authorities may become more **agile** in the development of their supervisory frameworks.



SupTech & RegTech tools may increase the **accuracy, comprehensiveness** and **timeliness** of risk management **without** commensurate increases in headcount.

# Supply drivers

Increased breadth of new analytical methods (e.g. AI) may allow for **more rapid processing** of regulatory and supervisory submissions (both structured and unstructured), assisting authorities in **identifying non-compliance**.



The development of systems providing a **greater degree of interoperability** (e.g. API, micro-services) may enable **higher** rates of adoption for SupTech and RegTech.

Technological infrastructure developments (Cloud based services) have **reduced the cost** and **increased the available capacity** for handling large datasets, which may in turn allow for a **greater deployment** of SupTech and RegTech processes.

With the **availability** of both more **structured** and **unstructured** data along with relevant technologies, authorities may **increase their own adoption** of SupTech and RegTech practices.



# Benefits, Challenges, Risks

## Benefits



SupTech may allow for **integration of additional** structured and unstructured data sources making analysis **richer**, while also **identifying patterns** in the data that may not be apparent to **human review**.

The ongoing digitalisation of data may improve the **efficiency and effectiveness of operational procedures**, while the automation of processes may **reduce IT and staffing costs**, in particular those related to fraud detection, reporting and risk management.



More **capital-efficient decision making** (e.g. RegTech for capital allocation for trading; compliance with pre-set credit or capital thresholds) may be possible allowing for **real-time settlement**.

SupTech may leverage AI and ML models, which could **improve surveillance** and **assessment** of systemic risks in **real-time** and through **forecasting**.



Improved **comprehensibility, interoperability** and **visualisation** of data by reducing its complexity and transforming it into **meaningful indicators**.

# Benefits, Challenges, Risks

## Challenges

**Rapid technological developments** in SupTech and Regtech would require authorities and financial institutions to take a strategic view on the **impact of new technologies** in financial supervision.



**Data quality and completeness** may be a challenge as authorities and financial institutions increasingly turn to non-traditional information sources (e.g. social media) to **fill gaps** or provide a **richer context** for their own data.



Increased adoption of SupTech and RegTech tools could put authorities and financial institutions in **direct competition for data science and engineering talent** with companies in other sectors.



SupTech and RegTech applications may be less effective if **data localisation measures** (and related data aggregation and operational risk management challenges) are not **reviewed** and **adjusted**.

# Benefits, Challenges, Risks

## Risks



**Increased cyber risk** through technological interconnectedness between financial institutions and external parties. New technologies may establish new 3<sup>rd</sup> party risks related to **Cloud based** services and **algorithm** providers.



Any **coding errors** in SupTech **underlying algorithms** may present supervisors with **spurious** rather than meaningful correlations, thus increasing **reputational risk** for authorities.



Increased risk of **regulatory arbitrage** if financial institutions learn how particular SupTech/RegTech applications, alerts or algorithms used by authorities are **calibrated** and in turn seek to **exploit** them.



Potential increase in **undetected breaches** of market integrity standards or criminal activities due to **over-reliance on technology** and **automation of risk monitoring** processes.

# SupTech strategy

Survey evidence – most authorities have a SupTech strategy **in place** or are in the process of **developing** one. **A third** of respondents had a **RegTech** strategy in place and the **majority** indicated that regulated entities in their jurisdiction were using RegTech tools.

**Considerations** for successful introduction of SupTech strategies:

- Senior management **buy-in** – support of the benefits, while realizing any limitations and risks
- Engagement with **frontline** supervisors and **end-users** of SupTech tools – **early** dialogue and **cooperation** to ensure successful implementation and adoption



Approximately **half of respondents** indicated that they have a formal **venue** or **platform** in place to **support testing** of SupTech tools and activities. Such environments may encourage staff to engage with or lead innovative projects.

**Regulatory sandboxes** or **innovation hubs** may provide authorities with broad mandates to **promote** innovation and **engage** with FinTech firms.



# Resource requirements

To **stay abreast** of technological developments and be **successful** in the **implementation** of SupTech strategies, authorities may pursue a range of **staff** related actions:



**Step up recruitment** of highly skilled and technologically sophisticated employees



**Improve retention** of digitally skilled professionals who already have specific domain knowledge of authorities' unique **needs**, their **regulatory frameworks** and **technological capacities**.



**Develop novel approaches to training** and knowledge sharing across departments.

# Data collection and storage

## Collection:

With **increased automation** and through adoption of **innovative protocols and technologies**, financial institutions could significantly **reduce compliance costs** and generate **operational efficiency** in reporting processes.

Another **key element** to facilitate the development of SupTech is the **standardisation** of data reporting **across** jurisdictions and sectors of the economy. To enable this, authorities and market participants need to agree a **common set of data definitions** and relevant **data models**.



## Storage:

With the advent of **Cloud based services**, most authorities are considering the possibility to adopt some Cloud solutions in order to take advantage of their inherent **economies of scale**, **greater efficiency** and **operational resilience** compared to more traditional approaches to data storage.



# Data processing and analysis

## Management and processing:

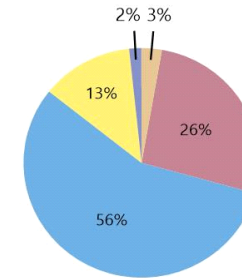
A **fifth** of Survey respondents indicated that their data is spread **across the organisation**, while a half organise their data only to **a limited extent**. Remaining authorities are almost **evenly** split between **a data lake model** and a **federated database system**.

SupTech applications are still a small portion of the **data validation** methods deployed by authorities, with a quarter reporting manual checks and more than half relying on static automated checks.

## Analysis and visualization tools:

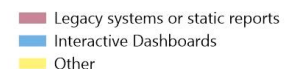
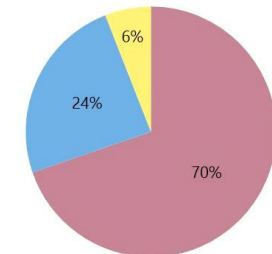
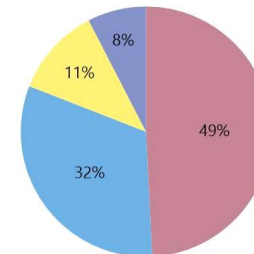
Most authorities have a strong **historical reliance on MS Excel** for data analysis, except for a few that indicate as much reliance on Python and R as Excel.

In terms of the nature of **analytical outputs**, the majority of analytics is **descriptive** and **diagnostic**, and as such are generally **backward looking**.



What is the end-result of the analytics output of data?

How is data distributed and presented?



# COVID-19 Use Cases

The **increased pressure** on authorities to cope with large volumes of data while working remotely has resulted in a number of **COVID-19 specific applications** aimed at improving the **timeliness** and **accuracy** of critical information, while also providing supervisors with critical perspectives.



**NLP for continuous monitoring and web searches** – a Fed Reserve Bank tool historically used for **reading large amounts** of BSA/AML documentation and **identifying emerging** trends was **adapted** by expanding its lexicon to support examiners in the review of documents submitted by firms during the COVID-19 crisis.



**Improved credit risk forecasting** – the ECB is currently looking into **combining sectoral loan level data** (currently only used for monetary policy and financial stability purposes) **with prudential information** to allow supervisors to drill down into **specific exposure types**, as well as viewing **risk trends** and **clusters** of risks **across sectors** prone to COVID-related shocks.



## COVID-19 Use Cases *continued*



**Sentiment analysis** – another tool the ECB is currently also exploring is seeking to assess the **reputational risk** of a financial institution by looking at **news on a range of topics** and **multiple different languages**. The dashboard will seek to provide an easily readable and customizable interface for ad-hoc analysis of the **public sentiment** and **complement** the **supervisory review and evaluation process** (SREP) with relevant pieces of information.



**Policy response tracker** – the BOE has created a dashboard where supervisors can see **at a glance** the latest and most recent **policy rate** and **QE decisions**, as well as **press releases** and **fiscal actions** in more than 50 countries. The dashboard informs **supervisory perspectives** on the different types and level of **support** a global firm may have available in response to the economic downturn from the pandemic.



**SAS-VA Covid-19 dashboard** – the DNB are developing an **interactive** dashboard to provide **insight** for supervisors on COVID-19 related risks. Supervisors would be able to have **different data views** (e.g. benchmarking, trends, single bank).

## Financial stability

RegTech and SupTech promise to add **new means to improve** (micro- and macro-prudential) supervision, oversight, and enforcement by authorities, and reporting and compliance by financial institutions, thereby potentially **strengthening the resilience** of the financial system.

To the extent that **automation** of regulatory and compliance functions can **reduce scope for human error**, while at the same time **increasing** the potential for **real-time** monitoring and information processing, RegTech and SupTech may be **positive developments** from a financial stability perspective.

However, a reason to continue to monitor developments closely is the **possibility** that regulated entities could become adept at **concealing** certain **actions** or **risks** ('gaming' the system).

## Recommendations

Authorities should consider developing SupTech strategy that **meets** their **unique objectives**, has the **buy-in senior management** and the **engagement** with those involved in **daily supervision**.



Authorities may seek to establish a **talent** strategy for **attracting** and **retaining** the necessary talent base with the right **digital skillsets**, as well as consider actively engaging and seeking **collaborations** with a range of other authorities, market participants, academia, technology providers and international organisations.



There is **no one size fits all** as to whether to build SupTech tools **in-house** or invest in a **third-party** solution, so authorities may wish to weigh the **operational trade-offs** involved in the two approaches and find the right mix.

## Recommendations *continued*



There are significant **untapped opportunities** for both authorities and market participants in the area of **data collection**. Going forward, authorities will move away from legacy systems and may consider **adoption of APIs** or **micro service interfaces** allowing market participants to **programmatically submit** their data.



Standard setters and authorities may wish to consider evaluating the scope for **common data standards and taxonomies** for relevant regulatory areas, including the potential for **international collaboration**, in order for reporting solutions to be made more scalable and interoperable.

Authorities and market participants may wish to **adopt** an environment that **encourages ‘fast fails’** and **dynamic idea sharing**. Authorities may **encourage open dialogues** that will lay the **foundation** for the **future** regulatory landscape.

Time for questions

# Annex

