Gaining Insights and Control by using Regulatory & Supervisory Technology
Evolution of Terminology

FinTech: Technology that helps facilitate retail financial services in a new way.

InsurTech: Technology helping insurers drive efficiency & innovation in the way they serve customers.

RegTech: Technology helping banks & FMIs comply with regulatory requirements.

SupTech: Technology that helps authorities in their mission to monitor, oversee and supervise financial markets.

TechFin: Technology giants entering the financial services markets (Google, Amazon, Apple, Alibaba, Tencent, ...).
Drivers of Suptech

- **Increased complexity**
  - Global interconnectedness
  - Larger, digitalized financial institutions
  - New market entrants - rise of FinTech
  - Velocity of transactions

- **Higher expectations**
  - Digitalization
  - AI/ML

- **Increased data collection post-Lehman**
  - BCBS239, CCAR / SST, MIFID
  - EMIR, Derivatives TRs
  - SFTRs, Payments Data Repositories
  - Resolution & recovery data
  - Payments data repositories
  - CCP stress tests
  - Trade & communications surveillance
Opportunities in Suptech

● Enabling Technologies
  ○ AI/ML
  ○ Robotic Process Automation
  ○ Data Visualization
  ○ Simulation/Agent Based Models
  ○ Cloud

● Outcomes
  ○ Less manual work
  ○ From periodic to real-time monitoring
  ○ From backward looking to predictive analysis
  ○ Reduced risk & better insight
  ○ Better communication
    ■ Internally within FIs
    ■ Between FIs and Supervisors
Challenges in Suptech

- **Data**
  - Quality
  - Access across organization(s)

- **Capabilities & Skills**
  - Data Science
  - Subject Matter
  - Technology

- **Gap between Research & Production**
  - Cool vs Useful
  - Tools & Technology
  - Decision making processes
Engagement by Financial authorities

Regulatory Sandboxes (many)

Fintech/Suptech Officers/Offices
- MAS, HKMA

Programs
- BoE Fintech Accelerator
- LabCFTC

Own use
- Central bank cryptocurrencies
- Big data programs
- Suptech deployments

Associations
- IRTA
- Australian Regtech Association
Technology Adoption in Supervisors

“The suptech generations”, BIS, October 2019
Technology Adoption in Supervisors

"The suptech generations", BIS, October 2019
Suptech Taxonomy

“The suptech generations”, BIS, October 2019
Suptech Adoption in Selected Regulators

- **Experimental stage**
- **Under development**
- **Operational**
Big Data & Related Applications - the 4 Vs

**Volume**
- **Data lake**: scalable storage solution for diverse structured, semistructured, and unstructured data
- **Web portal**: static file upload via web site with built-in automated validation checks
- **Chatbot**: automated capture and interpretation of qualitative data enabling data collection in real time
- **Application programming interface (API)**: direct database-to-database data transmission enabling granular, real-time reporting and automated validation
- **Data cubes**: granular data storage and transmission solution enabling real-time data collection
- **Web scraper**: automated capture of web data by “bots”
- **Cloud computing**: on-demand network access to a shared computing resources (e.g., networks, servers, storage, applications, and services)
- **Distributed ledger technology (DLT)**: a network to securely propose, validate, and record changes to a synchronised ledger distributed across multiple nodes
- **Robotic process automation (RPA)**: partial or full automation of manual, rule-based and repetitive human activities by “bots”
- **Dashboards**: customisable, dynamic interactive reporting tools that automatically fetch and render data in meaningful and actionable visualisations
- **Text mining**: automated extraction of meaning from textual data
- **Machine learning**: automated data analysis enabling anomaly detection, merge-sort, scoring and other use cases
- **Geographic information systems (GIS)**: automated analysis of spatial or geographic data

“*The supetech generations*, BIS, October 2019
Suptech Areas of Focus

“The suptech generations”, BIS, October 2019
SupTech Status

SupTech Approach

- No strategy reported: 19 (49%)
- Digital transformation: 9 (23%)
- SupTech roadmap: 11 (28%)
- 39 Authorities

SupTech Adoption

- Operational (29)
- Experimental (34)
- In development (36)

Internal vs. External Technology

- Both (22)
- External (25)
- In house (41)
- Not available (11)

“The suptech generations”, BIS, October 2019
Impacts of Suptech

Potential Suptech use cases
- Automated data-collection processes (use of data-pull or data-input systems; machine readable and executable regulation)
- Advanced data validation, analysis, visualization (cleaning and analysis of unstructured data; identification of spikes and trends)
- Platform and database integration (examiner dashboards, workflow tools, merging disparate data sets)
- Data management and storage (use of cloud computing to store big data)

Potential Suptech supervisor-level outcomes
- Improved scope, accuracy, consistency, and timeliness of collected information
- Enabling/enhancing risk-based supervision (better identification and measurement of risk)
- More efficient use of resources (reallocation of staff away from manual tasks)
- More efficient information flows between providers and supervisors, between consumers and supervisors, and across supervisors

Potential Suptech impacts
- Larger share of financial sector under supervision
- Improved consumer outcomes (better protection, increased confidence in market)
- Improved conduct of providers
- Better value for limited government resources

World Bank (2018)
82% of financial institutions anticipate increased RegTech budgets

Analytics & AI are major focuses for future spend
RegTech spend is spread across a variety of functional areas.

RegTech solutions in many financial institutions are a mixture of in-house & external applications.
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