

Gaining Insights and Control by using Regulatory & Supervisory Technology

FinTech 🔸	InsurTech	RegTech	SupTech	TechFin
Technology that helps facilitate retail financial services in a new way	Technology helping insurers drive efficiency & innovation in the way they serve customers	Technology helping banks & FMIs comply with regulatory requirements	Technology that helps authorities in their mission to monitor, oversee and supervise financial markets	Technology giants entering the financial services markets (Google, Amazon, Apple, Alibaba, Tencent,)

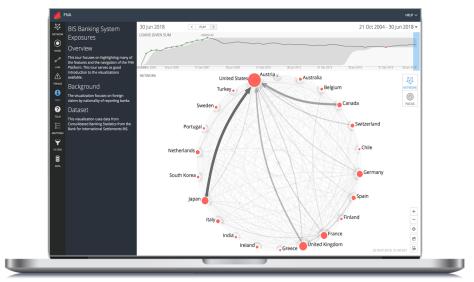
Drivers of Suptech

• 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



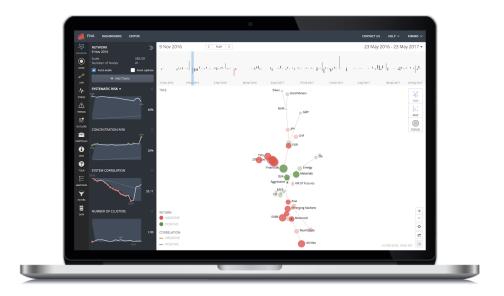
Opportunities in Suptech

• 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

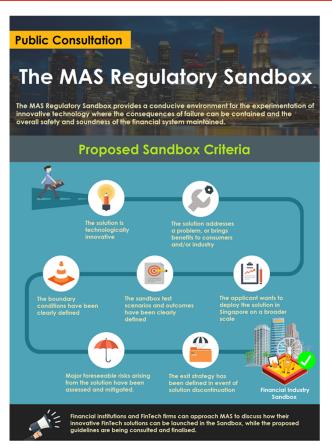
- BoE Fintech Accelerator
- LabCFTC

Own use

- Central bank cryptocurrencies
- Big data programs
- Suptech deployments

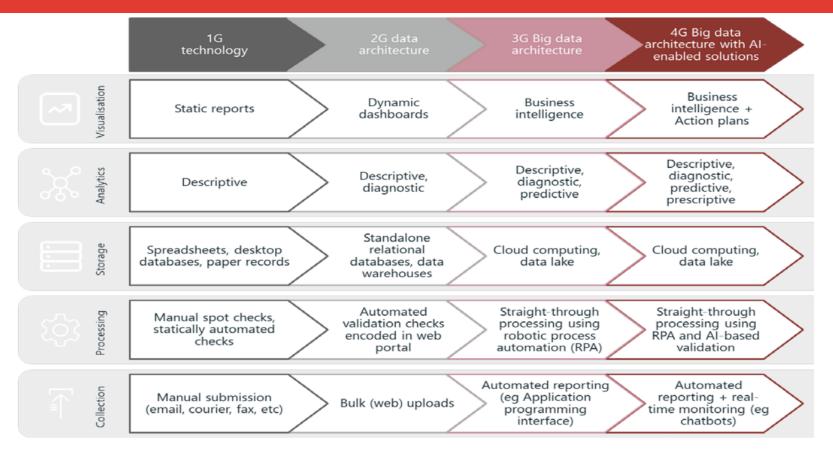
Associations

- IRTA
- Australian Regtech Association

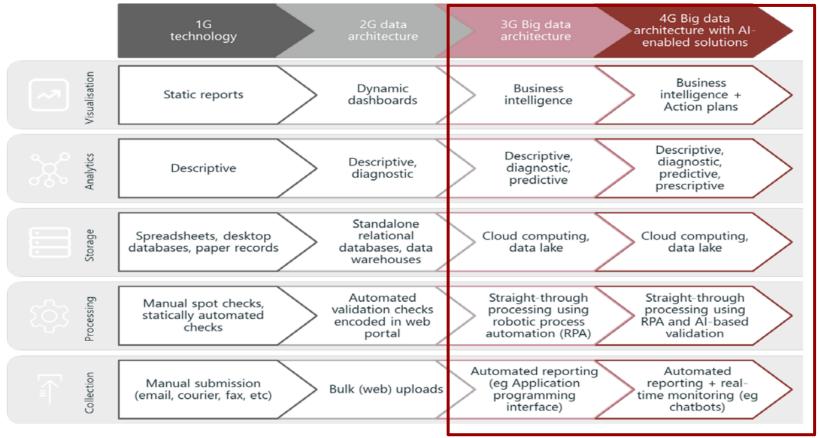


If you have any question, please contact us at fintech_office@mas.gov.sg

Technology Adoption in Supervisors



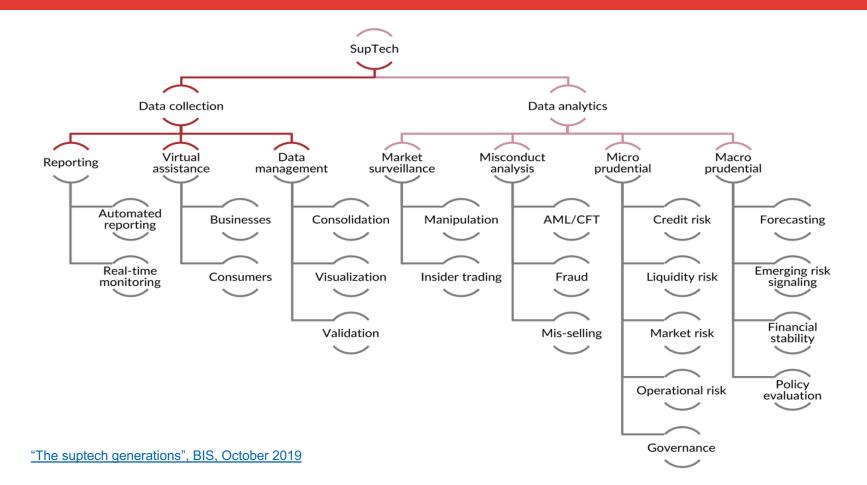
Technology Adoption in Supervisors



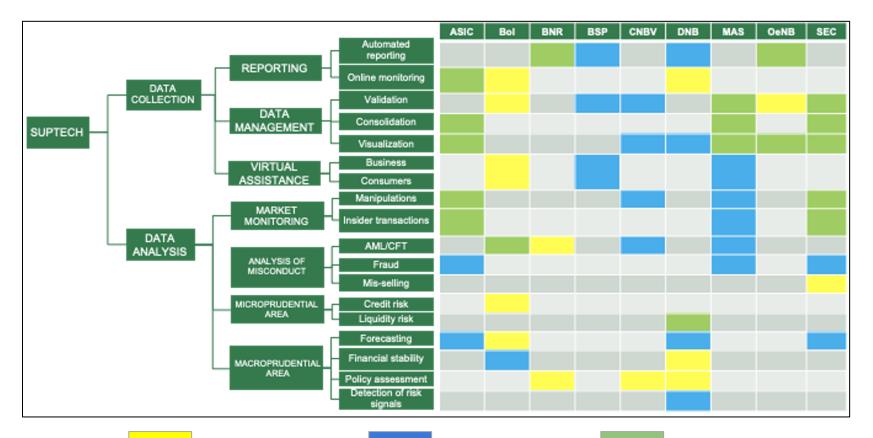
"The suptech generations", BIS, October 2019

Suptech

Suptech Taxonomy



Suptech Adoption in Selected Regulators



Experimental stage

Under development

Operational

Big Data & Related Applications - the 4 Vs



VELOCITY

VALIDITY

VARIETY

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 share computing resources (eg 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, rulebased 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, mergesort, scoring and other use cases

Geographic information systems (GIS): automated analysis of spatial or geographic data

Suptech Areas of Focus

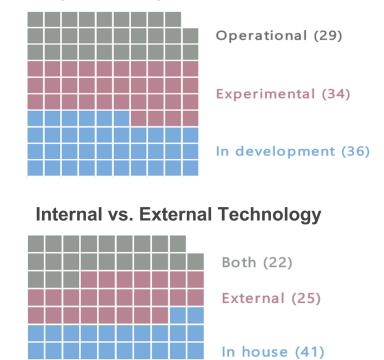
REPORTING	MISCONDUCT ANALYSIS		DATA MANAGEMENT	Visualisation, 4	MICROPRUDENTIAL SUPERVISION Credit risk, liquidity risk, 6
	AML/CFT, 15 Validation, 7 C		Consolidation, 1	Operational risk, 1	
			VIRTUAL ASSISTANCE	MARKET SURVEILLANCE	MACROPRUDENT IAL SUPERVISION
Automated reporting, 28			Consumers, 5	Manipulation, 4	Financial stability, 4 Emerging risk
Real-time monitoring, 4	Mis-selling, 9	Fraud, 6	Businesses, 2	Insider trading,	2 signalling, 1

SupTech Status



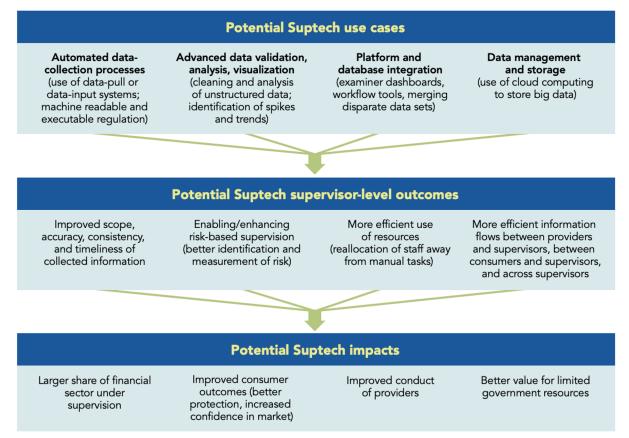
SupTech Approach

SupTech Adoption



Not available (11)

Impacts of Suptech

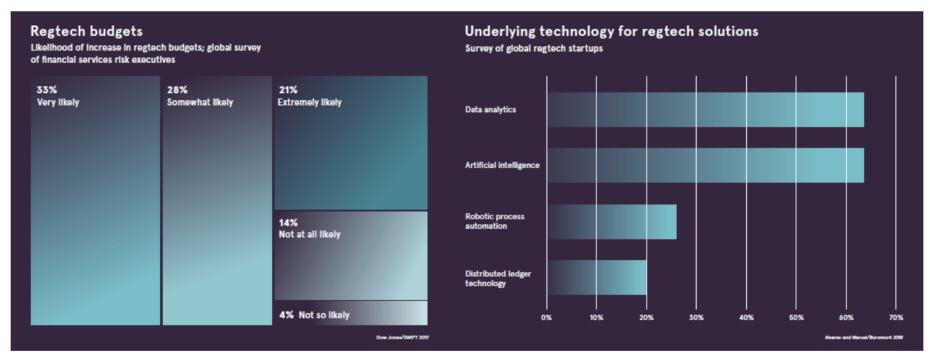


World Bank (2018)

RegTech Universe - budgets & underlying technologies

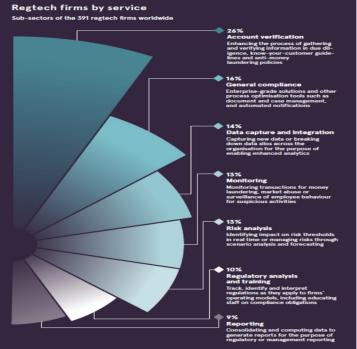
82% of financial institutions anticipate increased RegTech budgets

Analytics & AI are major focuses for future spend

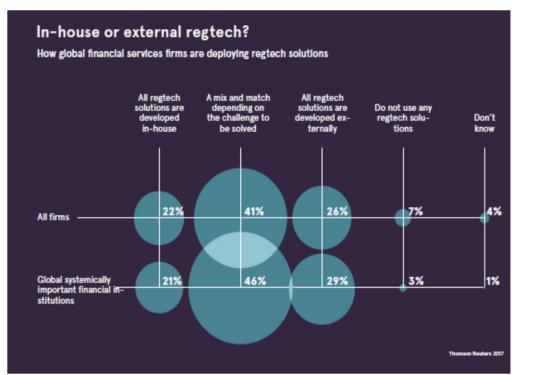


RegTech Universe - solution types and internal vs. external

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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