

KCMI 22nd Anniversary Conference: Digitalization in Financial Investment Services

RegTech Discussion within IOSCO Framework

October 2, 2019



FSS Fintech Innovation Office

Deputy Director Yong Tae Kim

Contents

- I. Priority Topics at 2019 IOSCO Annual Meeting**
- II. Machine Readable Regulation (MRR)**
- III. AI-based Regulatory Screening: Terms and Conditions of Financial Instruments**
- IV. Monitoring System for Illegal Financial Ads on the Internet**
- V. Priority Shortlist of IOSCO FinTech Network**
- VI. Challenges in RegTech and SupTech Adoption**
- VII. BIS Recommendations**
- VIII. Policy Directions for FinTech, RegTech, and SupTech**

I -1. Priority Issues at 2019 IOSCO Annual Meeting FinTech Network – RegTech Workstream



IOSCO Board

INTERNATIONAL
ORGANIZATION OF
SECURITIES
COMMISSIONS

Margin requirements

Asset management

Market fragmentation

Crypto-assets

Cyber security

Data protection

Fintech

Implementation monitoring

Audit committees

Cooperation between regulators

Fintech

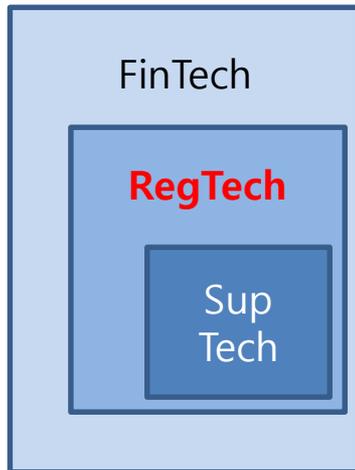
Distributed Ledger Technology (DLT)

Artificial intelligence (AI) and machine learning (ML)

Lessons Learned from Innovation

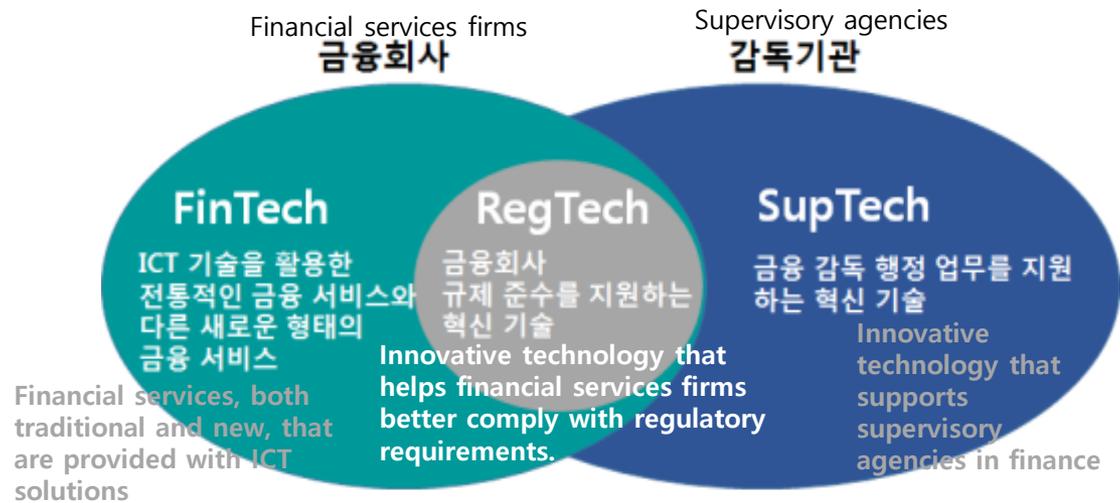
RegTech and SupTech

Conceptual classification



- FinTech \supset RegTech \supset SupTech

Functional classification



What is RegTech

- The use of new technologies to solve regulatory and compliance requirements more effectively and efficiently (RegTech as a subset of Fintech, Toronto Centre, etc.)

What is SupTech

- SupTech is currently found in two areas of applications : data collection and data analytics
- Supervisory Technology (SupTech) is a subset of Financial Technology (FinTech) that uses innovative technology to support supervision. (IAIS, etc.)

- ✓ The IOSCO Board approved research on four areas relating to Fintech in October 2018.
- ✓ IOSCO has formed a Fintech Network to facilitate exchanges among members on their experiences related to Fintech developments at its annual meeting held in Sydney, Australia in May 2019.

FinTech Network

DLT

- i) Research on tokenized stock or real estate
- ii) Research on further DLT applications
- iii) Improvement in Bond-I issuance, etc.

AIML

- Review supervisory considerations regarding AI and ML , and support market intermediaries (C3) and investment management (C5) based on AIML work underway.

RegTech and SupTech

- i) Explore new areas of focus.
- ii) Implement business applications.
- iii) Review priority topics of the Committee on Emerging Risks (CER) to explore future focus areas, etc.

Lessons Learned from Innovation

- Set a plan to share practical knowledge, provide targeted advice for member countries, and hold one-day events for networking and knowledge exchanges among member organizations, etc.

◆ The RegTech Workstream of IOSCO Fintech Network is carrying out a study on the Coding of Regulations.

* Established in May 2018, Fintech Network is an information-sharing network for Fintech in which over 50 countries including the United States (US), United Kingdom (UK) and Japan are participating.

◆ The FSS became a member of RegTech Workstream in January 2019 as well as Fintech Network in November 2018.

RegTech Workstream

- **(Background)** There are growing needs to respond to the developments of RegTech for compliance with more complex and diverse disclosure and reporting requirements, and SupTech for prudential supervision and risk oversight of financial markets and financial services firms.
- **(Set-up)** RegTech Workstream was set up as one of four workstreams for the Fintech Network.

* ① DLT, ② AI-ML, ③ RegTech, ④ Lessons Learned in Supporting Innovation

- RegTech Workstream has requested comments and feedback on a draft report on Coding of Regulations from the FSS, while the FSS informed RegTech Workstream of its plan to undertake a pilot project of machine readable regulation (MRR).

<Reference 2> RegTech and SupTech Adoption by Supervisory Agencies in Major Countries



Technologies currently used by supervisory agencies

Technology	Supervisory agency							
Data collection								
API	ASIC		BSP					
Data input approach	ASIC						OeNB	SEC
Data pull approach	ASIC	BNR	BSP			FCA		
Machine-readable regulation						FCA	MAS	
Cloud computing	ASIC			CNBV	DNB	FCA		SEC
Chatbots			BSP			FCA		
Data analytics								
Big data	ASIC	BoI		CNBV	DNB	FCA	MAS	SEC
Artificial intelligence				CNBV	DNB	FCA	MAS	SEC
NLP	ASIC	BoI		CNBV		FCA	MAS	SEC
Machine learning	ASIC	BoI		CNBV	DNB	FCA	MAS	OeNB
Supervised learning	ASIC	BoI			DNB	FCA		SEC
Unsupervised learning	ASIC				DNB	FCA	OeNB	SEC
Topic modelling						FCA		SEC
Random forest	ASIC	BoI				FCA		SEC
Image recognition						FCA		
Neural networks					DNB		OeNB	SEC

Note: based on interviews and public sources. Definitions of each technology can be found in the Annex.

* Source: BIS Innovative Technology in Financial Supervision – the experience of early user (July 2018)

<Reference 3> RegTech and SupTech Adoption by Supervisory Agencies in Major Countries



Areas of financial supervision in which RegTech and SupTech applications are used

Supervisory area		Supervisory agency 감독기관								
		ASIC	Bol	BNR	BSP	CNBV	DNB	MAS	OeNB	SEC
Reporting	Automated reporting			Operational	In development		In development		Operational	
	Real-time monitoring	Operational	Experimental stage				Experimental stage			
Data management	Validation		Experimental stage		In development	In development		Operational	Experimental stage	Operational
	Consolidation	Operational					Operational	Operational	Operational	Operational
	Visualization	Operational			In development	In development	Operational	Operational	Operational	Operational
Visual assistance	Virtual assistance		Experimental stage		In development			In development		
	Machine-readable regulations									
Market surveillance	Manipulation	Operational				In development		In development		Operational
	Insider trading	Operational						In development		Operational
Misconduct analysis	AML/CFT		Operational	Experimental stage		In development		In development		
	Fraud	In development						In development		In development
	Mis-selling									Experimental stage
Micro prudential	Credit risk evaluation		Experimental stage							
	Liquidity risk evaluation						Operational			
Macro prudential	Macro-financial risks	In development	Experimental stage				In development			In development
	Emerging risks signaling						In development			
	Policy evaluation			Experimental stage		Experimental stage	Experimental stage			
	Financial stability		In development				Experimental stage			
Note:		 초기단계 개발중 운영중								
		Experimental stage			In development			Operational		

* Source: BIS Innovative Technology in Financial Supervision – the experience of early user (July 2018)

II-1. Reporting Mechanism and MRR (Coding of Regulation)



MRR Project: Background and Plan

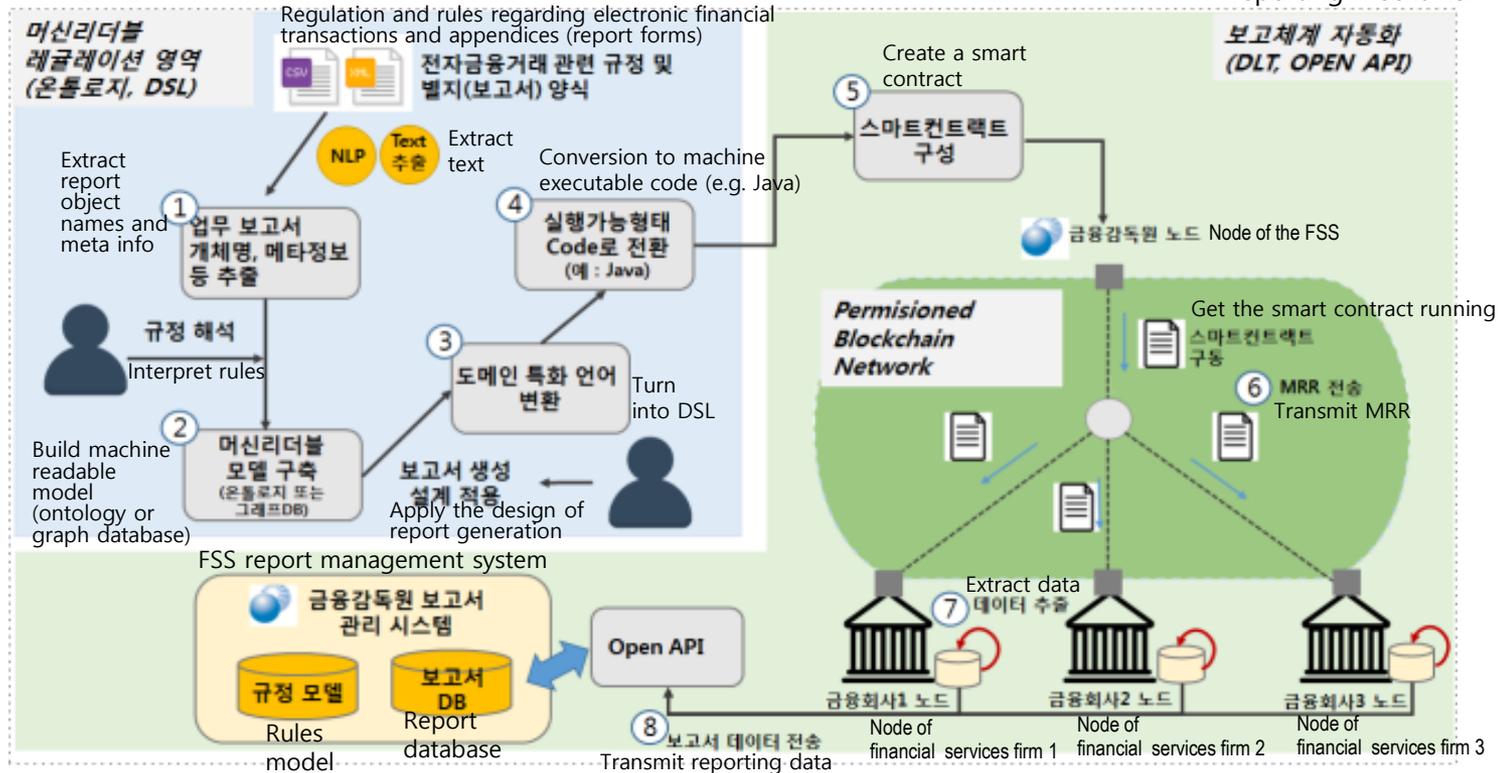
- Amid explosive growth in the amount of financial data, and technological advancements, artificial intelligence (AI) and automation steadily transform financial services. Meantime, the burdens of regulatory compliance faced by financial services firms are growing significantly as financial regulations become more complex and multi-layered.
- Although South Korea is one of the highest-ranked countries in IT industry competitiveness in the world, local financial services firms still rely heavily on manual work and processes for regulatory compliance, showing passive attitudes towards adopting RegTech that utilizes information technology (IT).
- Against this backdrop, the FSS unveiled its plan to facilitate the adoption of RegTech by financial services firms as part of the Regulatory Innovation in Finance Initiative on July 9, 2018. As a follow-up measure, it embarked on the MRR pilot project with the use of advanced technologies for the first time in the country.
- The pilot project will be a litmus test for determining the successful implementation of MRR, although the MRR study findings, released in March 2019, revealed some constraints on MRR caused by language (Korean) and others.

II-2. Reporting Mechanism and MRR (Coding of Regulation)

Chart of Regulatory Reporting Mechanism

MRR area (ontology, domain-specific language or DSL)

Automated regulatory reporting mechanism

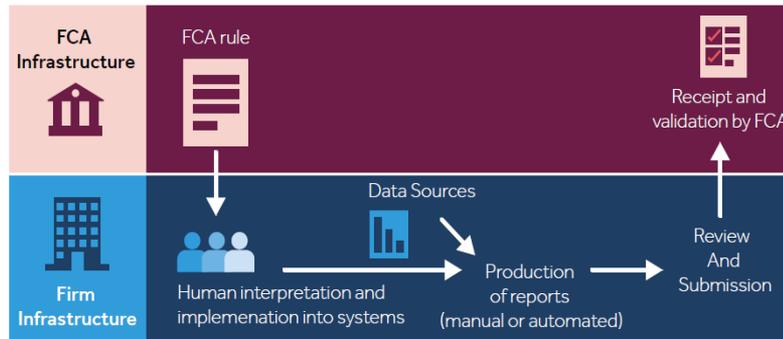


Proof of concept developed for the pilot MRR project

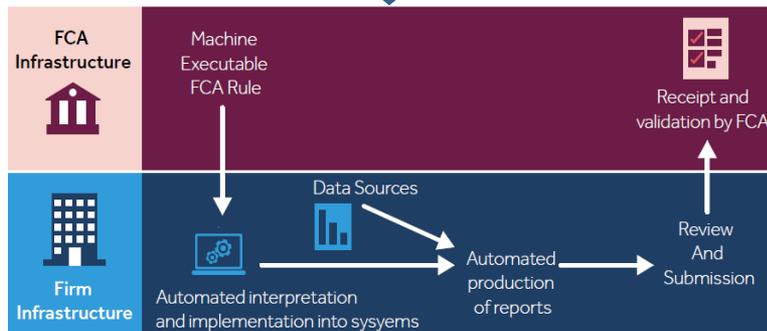
The UK's FCA pilot project on digital regulatory reporting and results of the pilot

* The Financial Conduct Authority (FCA) and Bank of England (BOE) conducted a proof of concept for digital regulatory reporting in collaboration with six financial services firms and published a pilot report in March 2019.

As Is

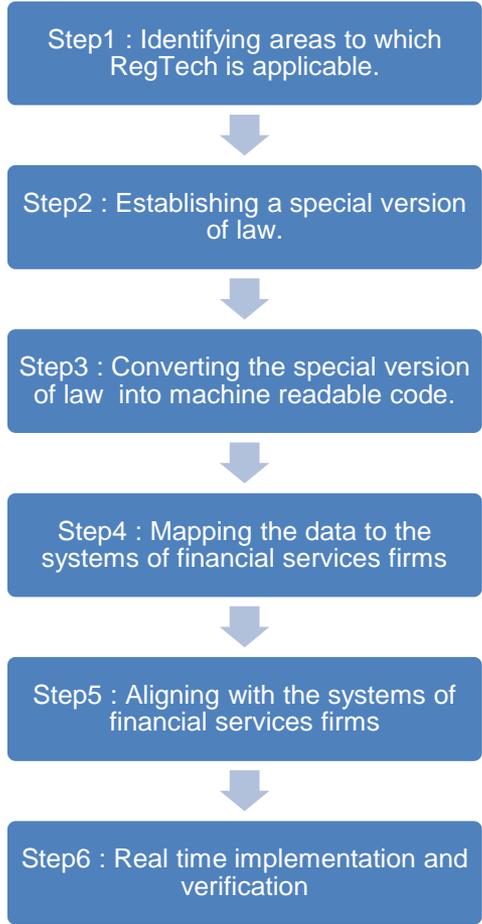


Enhancement



Evaluation

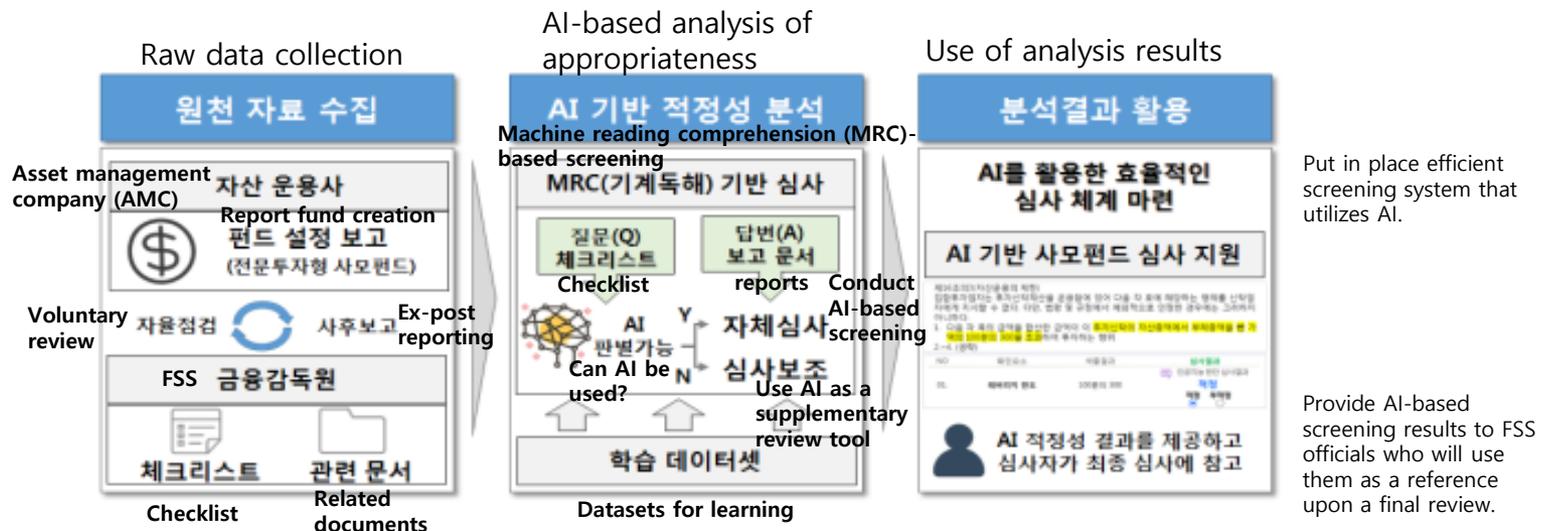
The results of Pilot Phase I find difficulties converting regulation into machine readable code, and obvious benefits of automated regulatory reporting, which justifies continuing research.



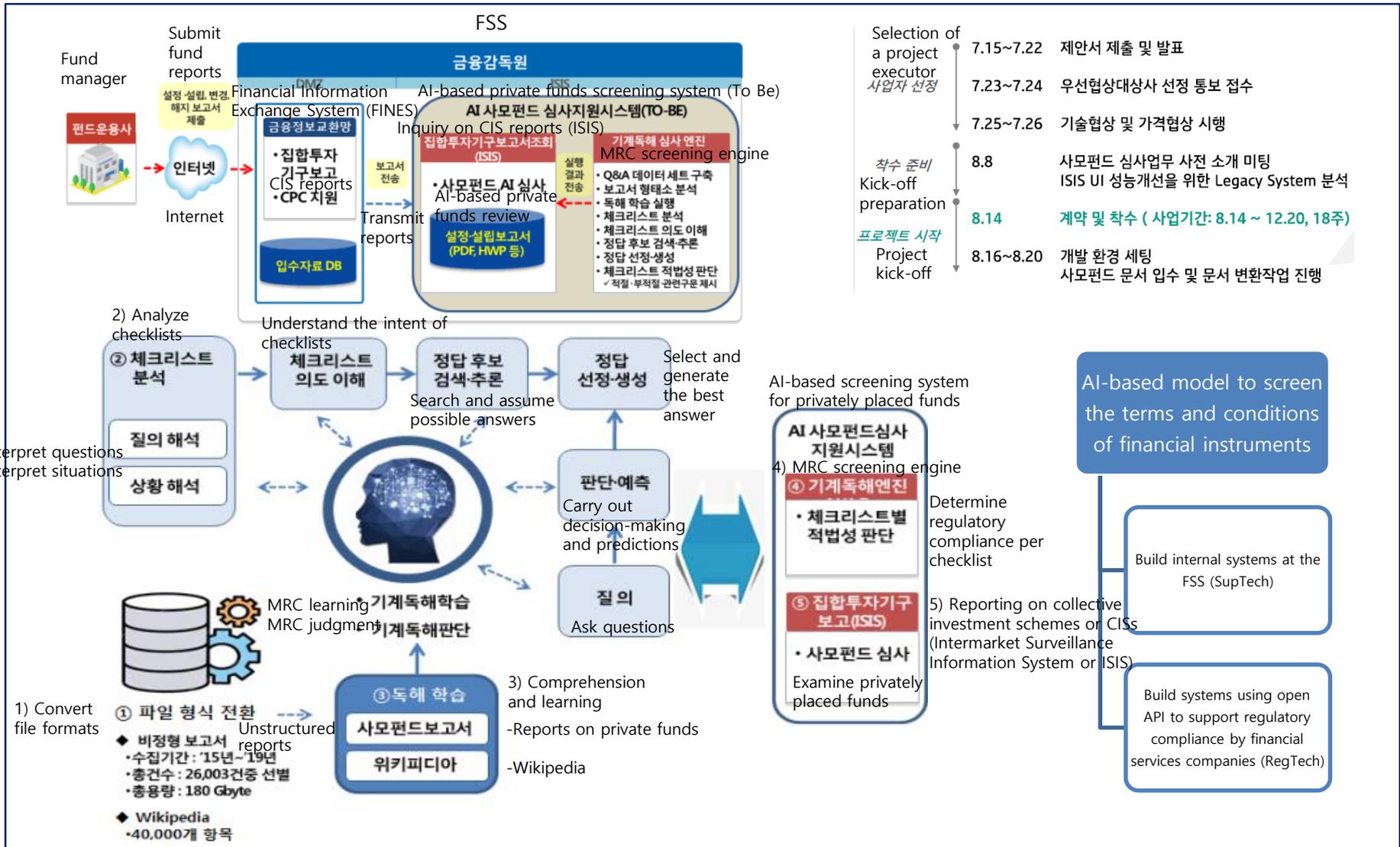
III-1. AI-based Regulatory Screening: Terms and Conditions of Financial Instruments

An AI-based pilot system to review the terms and conditions of financial instruments

- **(Now)** Officials at the FSS manually sift through files to screen diverse and complex terms and conditions of financial products, which requires excessive time and human input.
 - **(Initiative)** Deploy AI to automatically convert the terms and conditions of financial products submitted to the FSS into data and to analyze and determine whether the terms and conditions thereof comply with all relevant regulations and rules, and infringe the rights of consumers.
- ☞ Accumulate screening results, checklists, evaluation criteria, etc. in the platform and use machine learning and AI to preliminarily determine whether the terms and conditions of a financial product in question are deemed appropriate.



III-2. AI-based Regulatory Screening: Terms and Conditions of Financial Instruments

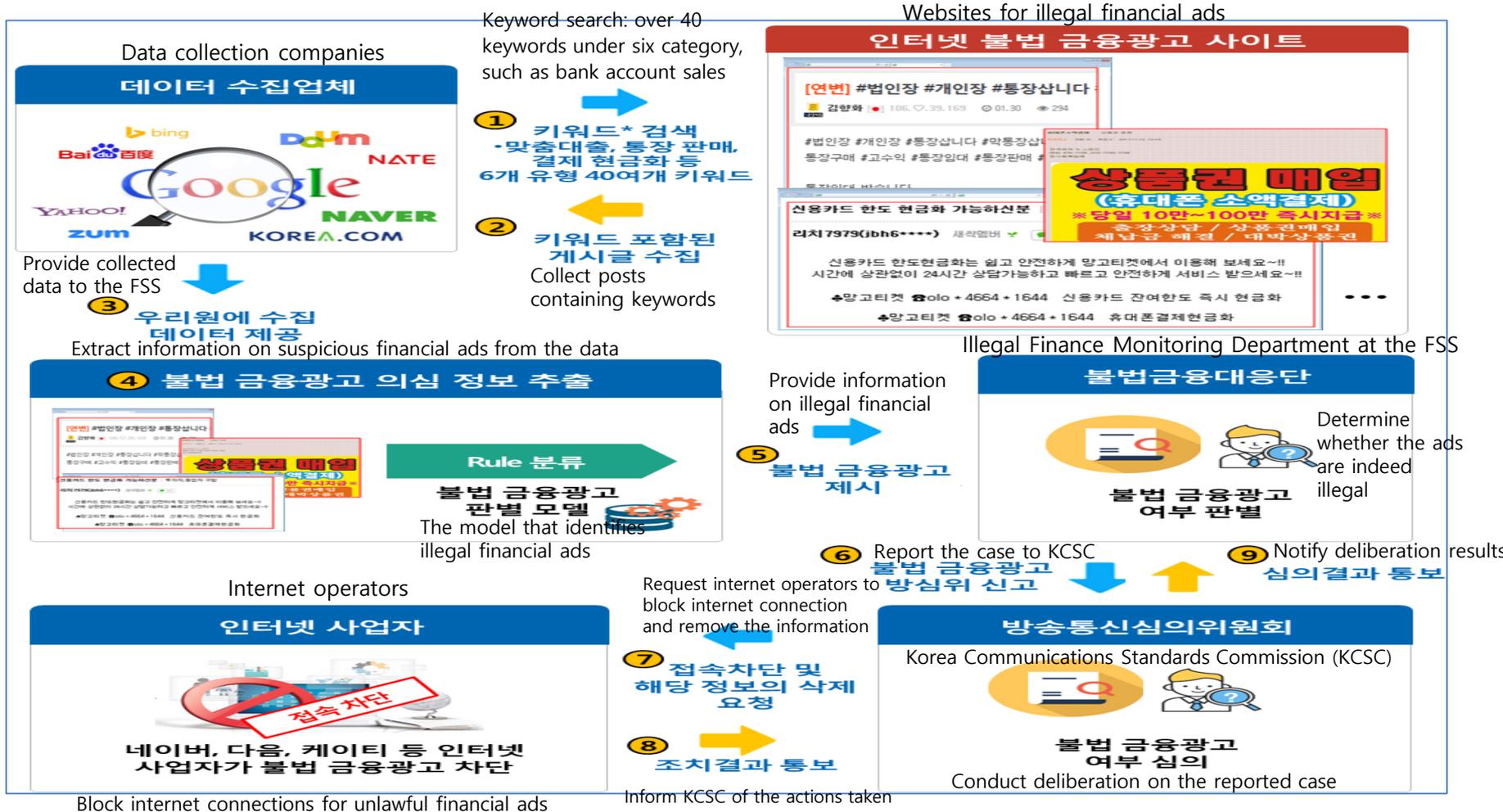


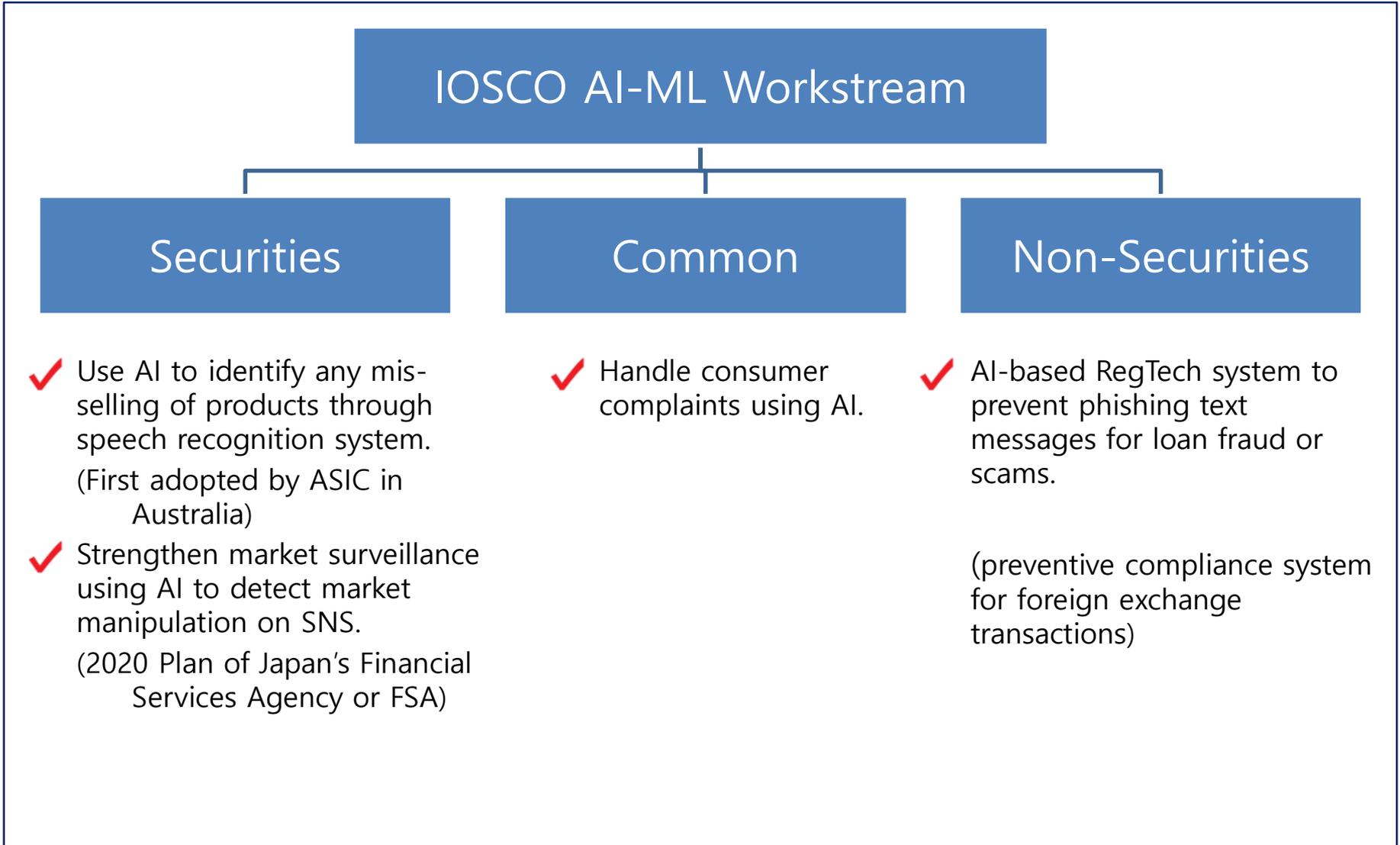
-Interpret questions
-Interpret situations

IV. Monitoring System for Illegal Financial Ads on the Internet (Phase 1)

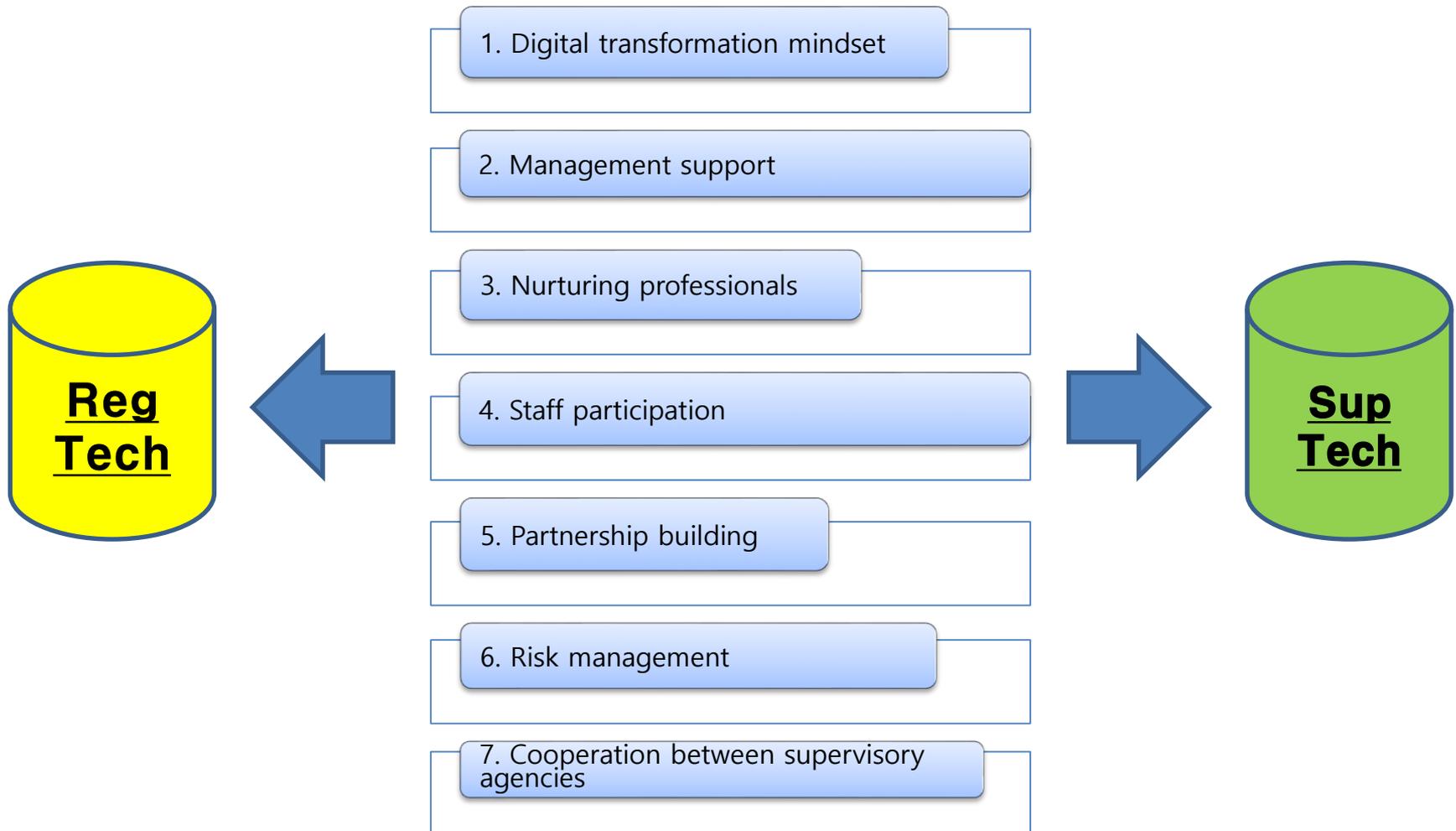
This system gathers **big data** on internet ads for financial products and services from blogs and SNS, and **uses AI to analyze them** in order to detect illegal ads.

Concept map of FSS monitoring system to detect internet ads for illegal financial products and services





VI-1. Common Challenges in RegTech and SupTech Adoption



VI-2. Challenges in RegTech Adoption for Financial Services Firms

(As Is) Reliance on IT department for data analytics

- For a financial services firm that has no compliance data warehouse, data access requires approval from the IT department, meaning the compliance department's very limited access to data.



(To Be) Ensure the compliance department is IT-independent

- Need to establish a separate data warehouse for the compliance department, which does not affect the company's IT infrastructure.

(As Is) RegTech is not in the scope of next generation systems.

- Financial services firms have been building next generation systems primarily for sales and marketing departments to maximize cost efficiency.



(To Be) RegTech should be included in the scope of next generation systems.

- Include RegTech in the scope of next generation systems, taking into account data requirements definition, data collection and analytics logic for compliance tasks.

(As Is) Lack of IT staff in charge of IT compliance

- Most financial services firms, except a few large firms, have no IT staff in charge of IT compliance.

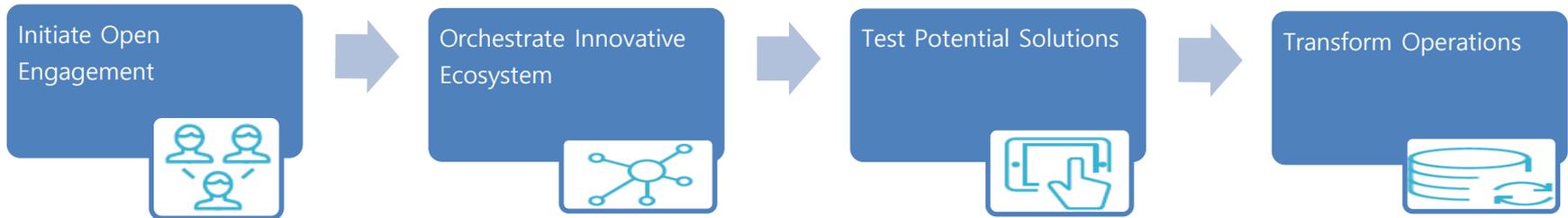


(To Be) Secure IT staff responsible for IT compliance

- Secure IT professionals to manage the compliance data warehouse and conduct real time monitoring of regulatory compliance through big data analysis, etc.

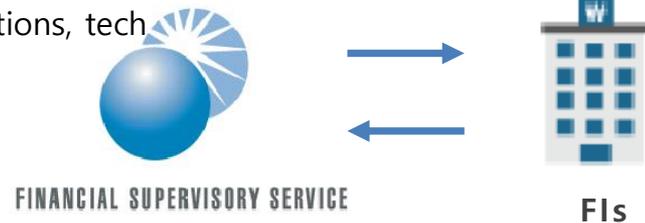
VI-3. Challenges in RegTech Adoption for Supervisory Authorities

1. Create a roadmap to accelerate the adoption of RegTech.



2. Build a platform for collaboration.

- Encourage staff from supervisory agencies, financial institutions, tech firms, and law firms to work together.
 - Benchmarking study: FCA Tech-Sprint in the UK, and ASIC Innovation Hub in Australia
 - Set up Tech-Finder in the FSS.



3. Create an environment for financial services firms to adopt RegTech.

- Stress the significance of internal controls and regulatory compliance, inducing financial services firms to perceive them as an investment, and not as a cost.

4. Lead the way in RegTech adoption by financial services firms through proactive SupTech adoption.

5. Take a new digital-based approach to supervision (digital transformation).

◆ The adoption of SupTech is expected to make financial supervision more efficient and improve supervisory capabilities.

◦ Financial supervisors need to explore SupTech's potential risks and limitations, and have their well-defined SupTech strategy.

SupTech Adoption Strategy

1

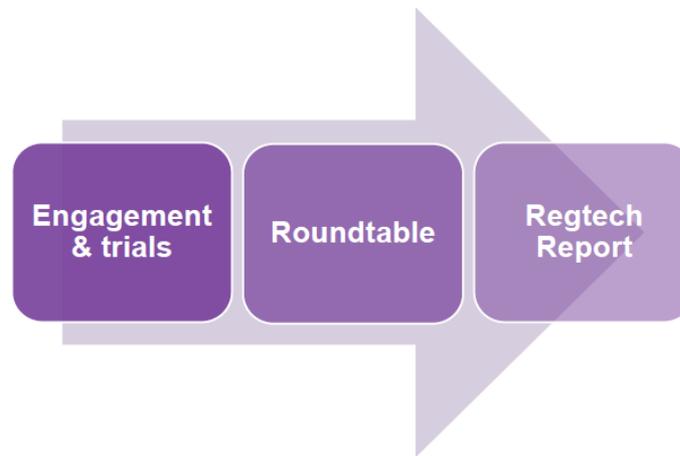
- **Set ambitious and achievable targets.**

2

- **Assess a supervisory agency's data availability, data quality, and analytical resources.**

3

- **Establish a step-by-step action plan for full implementation of SupTech strategy.**



- Informal assistance through the Innovation Hub
- Stakeholder meetings
- Technology trials
- 80 entities
- Potential to promote good risk management and compliance outcomes
- Commercial, regulatory, practical barriers
- Our Innovation Hub work to date
- Our approach to regtech
- Report from the round table
- Seeking feedback on proposed next steps

