Eidgenössische Finanzmarktaufsicht FINMA
Autorité fédérale de surveillance des marchés financiers FINMA
Autorità federale di vigilanza sui mercati finanziari FINMA
Swiss Financial Market Supervisory Authority FINMA

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Marlene Amstad, Chair, Swiss Financial Market Supervisory Authority (FINMA)
Chair, IOSCO SupTech Forum (International Organisation of Security Commissions)

Innovating Financial Supervision with SupTech

Ladies and gentlemen

It is a privilege to address the Singapore Fintech Festival – here in a city that stands as a living symbol of growth, innovation, and digital ambition. I would like to begin by expressing my sincere gratitude to the organizers for the warm welcome. Singapore and Switzerland may lie far apart geographically, but we are united by a shared focus on technology and innovation[1].

Technology is increasingly vital to finance. The interesting panel we just heard on how digital assets are transforming cross-border finance has once again underscored this point. With the rise of artificial intelligence, major change lies ahead. AI is not merely another tool; it is a fundamental shift. If the internet changed how we connect and mobile changed how we consume, AI changes how decisions are made. As with any fundamental technology, the opportunity is substantial – and so are the risks.

New technologies tend to benefit customers and institutions, but they also challenge regulatory frameworks and operational resilience. As supervisors, we cannot stand on the sidelines. We must understand new technologies, anticipate their impact, and harness them responsibly for the public good.

The Three Phases of Financial Supervision

Financial supervision has evolved significantly over the past century, reflecting changes in markets, technology, and the global economy. Today, we can broadly distinguish three major phases in this evolution, each marked by distinct principles, challenges, and approaches. Looking at these broad arcs can help us assess the transformative potential of technology for today's supervision.

[1] In its 2025 report, the IMD World Competitiveness Center ranks Switzerland and Singapore first and second, respectively, in terms of global competitiveness.

Phase 1 – Foundations: Principles of Supervision

The origins of modern financial supervision are closely linked to the need to ensure trust and stability in national financial systems. In the aftermath of financial crises, particularly during the early 20th century and the Great Depression, governments recognized the importance of robust oversight mechanisms[2]. Central banks and supervisory agencies began to define their mandates, focusing on prudential supervision, market integrity, and investor protection.

During this phase, supervision was mostly national, far less complex and differentiated than it is today, and therefore more principle based. Regulatory frameworks were designed to provide broad guidance rather than highly detailed rules. Authorities relied heavily on manual processes, reports, and direct inspections, with decision-making based on judgment, expertise, and experience and much less on data analytics.

This foundational period was essential for establishing trust in financial systems. The principles developed during this time – such as capital adequacy, liquidity management, and governance standards – remain relevant today. In essence, phase one established the core mission of supervision: safeguarding stability and confidence in financial markets.

Phase 2 – Globalization, Harmonization and International Standards

With the globalization of financial markets in the late 20th century, new challenges emerged. Financial institutions became increasingly interconnected, cross-border banking grew rapidly, and capital flowed with unprecedented speed[3]. Supervisors quickly realized that national frameworks alone were not sufficient to manage these complex risks effectively.

This realization gave rise to the globalization of financial market regulation. Key milestones included the development of international standards such as Basel I in 1988, which set minimum capital requirements for banks, followed by Basel II and III, which introduced more sophisticated risk-sensitive frameworks. These standards aimed to harmonize supervisory practices, reduce regulatory arbitrage, and ensure that systemic risks were properly managed across borders.

During this phase, regulation became increasingly complex[4], quantitative and, as a result, more rule-based. Authorities increasingly relied on statistical models, reporting frameworks, and standardized metrics to assess the health of institutions. On the technical side, this development was supported by the advent of computers and spreadsheets. Collaboration between regulators also intensified through

[2] For example, the US Congress passed the Securities Act of 1933 at the peak of the Great Depression. The following year, it passed the Securities Exchange Act of 1934, which created the SEC. Also dating from 1934 is the Swiss Banking Act, which is still in force today.

[3] According to a study by McKinsey & Company, cross-border capital flows rose from $0.8 trillion in 1980 to a peak of $11.8 trillion in 2007. During the Global Financial Crisis, this figure collapsed. See Lund, Daruvala, Dobbs, Härle, Kwek, Falcón. (2013) Financial globalization: Retreat or reset?

[4] In its "Evaluation of the impact and efficacy of the Basel III reforms" of 2022, the Basel Committee on Banking Supervision attempts to assess the degree to which Basel III has become more complex than Basel II. While the Evaluation rightly cautions that regulatory complexity cannot easily be measured empirically and may differ in subjective perceptions, it concludes that "In order to more comprehensively address risks, Basel III is a more sophisticated and arguably more complex regulatory framework".

bodies such as the Basel Committee on Banking Supervision, IOSCO, and the IAIS, creating a global network of information exchange and policy coordination.

But the increasing complexity of financial markets, institutions and risks also highlighted the limitations of mostly mechanical, rule-based supervisory approaches. More supervisory data does not automatically lead to better supervision. This ultimately sets the stage for the next phase.

Phase 3 – Technology: The Age of SupTech

We are now entering a new era of financial supervision. This time, the shift is not so much driven by regulation, but by technological capability. Advancements in data analytics and artificial intelligence are fundamentally reshaping the supervisory landscape. They can provide new and deeper insights from vast amounts of data, enabling regulators to move beyond traditional, reactive data-reliant supervision. This phase, often referred to as SupTech[5], represents a transformative shift in how supervisors operate.

In this technological era, supervisors are moving towards more proactive and predictive oversight. Real-time monitoring, machine learning models, and advanced data analytics allow authorities to identify emerging risks more quickly and respond more effectively. SupTech tools enhance efficiency, reduce manual workloads, and enable more sophisticated stress testing and scenario analysis.

This phase also introduces new challenges. Regulators must ensure the reliability, transparency, and trustworthiness of data-driven tools. They must also adapt their organizational structures, develop new skills, and foster collaboration with technology providers and international counterparts.

To sum up: while our mandate remains unchanged, both markets and the instruments at our disposal have evolved profoundly. Consequently, our supervisory approach must transform as well.

Taking Stock: The IOSCO SupTech Survey

Considering the transformative impact of technology on financial supervision, IOSCO, the International Organization of Securities Commissions, launched a strategic initiative that FINMA had the honor to spearhead.

In the first half of this year, IOSCO launched its first comprehensive stock take on SupTech. Participation accounted for over 75 percent of total global securities market value, underscoring the reach of the initiative. The results are wide-ranging, so in these brief remarks, I will concentrate on just a few that stand out.

[5] The term 'SupTech' (Supervisory Technology) was first introduced by the then Managing Director of the Monetary Authority of Singapore (MAS) in a speech at the 2017 Singapore FinTech Festival.

First, who engages in SupTech?

Let me start by emphasizing that SupTech is truly global. SupTech spans all IOSCO regions and a wide spectrum of markets. While the means may differ, every supervisor engages with SupTech in one way or another.

This global perspective allows us to explore a crucial question: Does technology create greater divergence between countries, or does it enable them to catch up? The results suggest the latter: when implemented pragmatically, SupTech can help level the playing field across jurisdictions. Interestingly, it also revealed that smaller authorities – such as FINMA – and those in emerging markets increasingly view SupTech as a strategic opportunity to enhance their supervisory capacity[6].

Second, what are the goals that Supervisory authorities aim for when engaging in SupTech?

As shown in this chart, efficiency and effectiveness are the dominant drivers: authorities are looking for ways to be faster and more impactful in their supervisory activities. But it's not only about speed – and it's not just doing the same things more quickly.

A close second driver is the pursuit of deeper insights. This is particularly the case in conduct supervision, where quickly understanding the relationships between different data points is critical.

We also asked the inverse question: Why is SupTech not being used? Here, cyber and data security emerged as the most significant concerns. Cyber risks are a double-edged sword – they are both a reason to adopt SupTech and a reason to be cautious.Another key barrier is third-party and operational risk. Many authorities are cautious about depending on external providers or technologies they can't fully control[7].

What's particularly noteworthy: staff redundancy is almost never cited as a reason for SupTech adoption. Only 4% of respondents listed it as a goal. This underscores a crucial insight – the potential of SupTech lies not in replacing human supervisors, but in empowering them.

Third, what are the use cases and what technology is used?

SupTech use cases are broad and continue to expand. Investor protection and capital markets supervision remain the most common application areas, but its use is also growing in fields such as anti-money laundering (AML), licensing, and compliance assistance.

One notable area where interest is particularly rising is the supervision of digital assets. As products, venues, and business models evolve quickly, SupTech provides the analytical framework to monitor behaviors, detect anomalies, and ensure fair and orderly markets.

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[6] See also: Marlene Amstad: SupTech – a core supervisory tool; speech held at the Global Fintech Fest 2025, Mumbai, October 2025 and SupTech (supervisory technology) a strategic priority for financial market supervisory authorities across the world, speech held at the IOSCO Annual Meeting, May 2025.

[7] Financial Stability Board (2020): The Use of Supervisory and Regulatory Technology by Authorities and Regulated Institutions.

Fourth: Which technologies? AI ascendant, DLT deprioritized

Another question we asked was *which technologies do Supervisor use*. Here: AI – including machine learning and natural language processing – now stands out as the enabling force for SupTech[8]. It is the lever that turns large, uncategorized data into usable supervisory intelligence. By contrast, Distributed Ledger Technology, once at the center of many conversations, ranked near the bottom for immediate supervisory relevance in most jurisdictions. This does not invalidate DLT; it simply urges caution regarding the speed at which the most relevant technology might change.

Equally important is what respondents did not prioritise: only a small minority cited 'technology availability' as a reason to adopt SupTech. In other words, demand is driven by supervisory need and strategic intent – not by the mere existence of new tools. In fact, I look forward to the upcoming IOSCO panel on regulatory and market developments in tokenization.

International Cooperation – IOSCO SupTech Forum

As the survey demonstrates, supervisors worldwide are united in the challenges and opportunities that SupTech offers. This opens new opportunities for collaboration and cooperation. Where we explore new frontiers, we can learn from each other.

I am therefore particularly pleased that IOSCO has today announced the establishment of the SupTech Forum, which I will have the honor of chairing. IOSCO brings together securities regulators covering more than 95% of the world's securities markets in over 130 countries. Financial markets – especially capital markets and trading platforms – are often among the pioneers in the introduction of new technologies. IOSCO is therefore predestined to be the international forum for SupTech. The SupTech Forum provides us with a platform to discuss the challenges and opportunities of this digital transformation. Stay tuned for more information to be published soon.

Implementing SupTech at FINMA - 3D: Data, Discretion, Discipline.

At FINMA, SupTech is not merely a technological trend – it is a genuine strategic priority. Our mandate remains unchanged: To protect creditors, investors and insured persons, and to ensure the smooth functioning of the financial markets. Technology serves these core objectives, rather than becoming an end in itself.

We apply three guiding principles in our SupTech strategy:

Data-driven, not Data-dominated.
Data analytics, algorithms and machine learning empower insight – but they cannot substitute qualitative assessment. Supervision in areas like Governance, suitability and conduct requires context and nuance. SupTech supports supervision – it does not steer it.

[8] See also: Marlene Amstad: Artificial intelligence is reshaping financial markets and supervision; speech held at the AMF-AEFR Conference, September 2025.

Discretion – "No Robocop"
Technology should enhance human judgment, not replace it. Supervisory decisions must remain explainable, accountable and grounded in professional expertise. We ensure this by keeping a human in the loop for relevant decisions.

Discipline through Principles.
Our approach to supervision remains principles-based, not rule-bound. Even as we adopt new tools, we stay anchored in broad, enduring standards that ensure flexibility, proportionality and sound judgment.

In sum, SupTech at FINMA is about strengthening our capacity to safeguard the Swiss financial centre - not outsourcing it to machines. Through **Data, Discretion and Discipline**, we combine technology, human experience and principled oversight to stay ahead of emerging risks and maintain trust in the market.

SupTech as a leadership task

Let me close with one key reflection. I've worked at the intersection of data, technology and finance for more than 30 years – across Europe, the U.S. and Asia.

If there's one thing I've learned, it's this: culture is crucial in Technology. Culture outweighs data. Culture outweighs technology. Culture even outweighs budget. You can have perfect data, the most advanced technology, and all the resources you want – but if you don't bring experts in supervision and experts in technology to the same table, you won't succeed. SupTech cannot simply be delegated to the IT department or a few tech-savvy experts. It changes how supervisory work is done and organized at its very core. SupTech is truly interdisciplinary field and a collaborative task. Both in its development and its application, it requires the combined commitment of supervisory experts, IT specialists, data scientists, lawyers, and economists across all hierarchical levels. That's why SupTech is, above all, a leadership task. It requires strategic direction and guidance.

Let me conclude: A quick overview of the evolution of financial supervision over the last hundred years has shown how much has changed – but also what has remained essentially the same. The true challenge now is to carry these principles forward and amplify their impact through modern technologies. In my view, this is the defining strategic mission for supervisory authorities in the age of SupTech.