



Digital Transformation of Capital Markets: Artificial Intelligence, Tokenized Assets and Programmable Money

Prof. Vedat AKGIRAY & Dr. Aysun HERGES - Boğaziçi University,
Center for Applied Research in Finance (CARF)

Capital markets have entered the orbit of three seemingly independent technological waves over the past five years: the diffusion of artificial intelligence, the tokenization of real-world assets, and the redesign of money itself in a programmable form. These three currents are rising not in isolation but simultaneously; together, they are redefining the cost, speed and transparency parameters of the intermediation architecture on which capital markets operate. For publicly listed companies in Türkiye, this transformation has already begun to produce tangible consequences across the communication layer, the settlement infrastructure, and the long-term dynamics of valuation.

The impact of artificial intelligence on investor relations is typically discussed from the issuer's side of the table. Operational efficiency, document review, press monitoring and meeting preparation have rightly entered the agenda. The more consequential half of the picture, however, lies on the buy side. According to Nasdaq's 2026 Global IR Issuer Pulse survey, 51 percent of investor relations professionals have embedded artificial intelligence into their workflows; the corresponding figure stood at 30 percent only a year earlier.¹ Institutional investors are now able to process company disclosures, earnings call transcripts and sustainability reports through large language models within seconds. Detecting inconsistencies between a CEO's statements across different reporting periods, comparing past projections with realized outcomes, and quantifying the sentiment of the language used in disclosures are tasks that increasingly replace what used to require hours of expert effort.

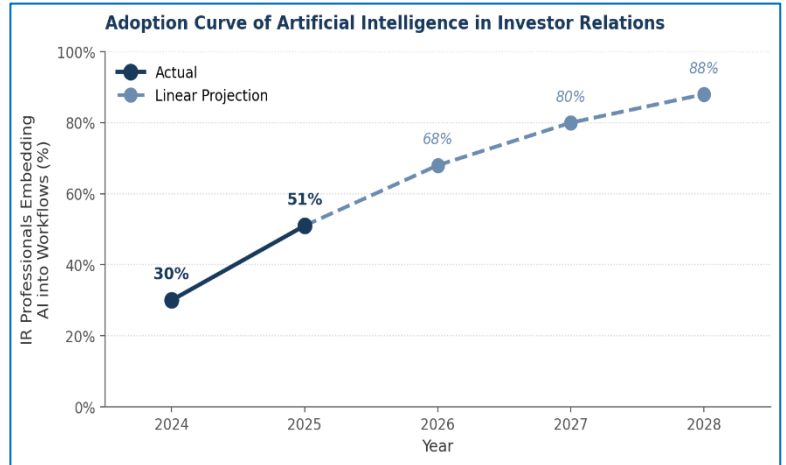


Chart 1. Annual change in the share of investor relations professionals embedding artificial intelligence into their workflows, with linear projection. Source: Nasdaq Global IR Issuer Pulse 2024 and 2026.

Andrew Lo's Adaptive Markets Hypothesis shows that market participants can evolve and that the degree of market efficiency fluctuates with ecological conditions.² The leap we are witnessing today is precisely a transformation in the analytical infrastructure of the investor base. The implications for the investor relations officer are clear: public disclosure must now address not only the human analyst but also the algorithmic systems that process the same output in seconds. As inconsistency detection becomes automated, the alignment of key concepts with institutional memory has grown markedly more important; the coherence between answers given in question-and-answer sessions and prior disclosures has begun to take its place among the principal metrics of performance evaluation.

¹ <https://www.nasdaq.com/solutions/ir-intelligence/resources/trends/global-issuer-pulse>

² https://web.mit.edu/Alo/www/Papers/JPM2004_Pub.pdf

The analytical capacity created by artificial intelligence on the investor side does not, on its own, constitute a complete narrative. In the same period, a second wave has begun to carry assets themselves onto blockchain infrastructure. The concept of tokenization long remained a theoretical discussion; the last two years have fundamentally changed the picture. BlackRock's BUIDL (USD Institutional Digital Liquidity Fund), issued in March 2024, is a tokenized asset product backed by short-term US Treasury bills and had reached approximately USD 2.5 billion in size by November 2025.³ Franklin Templeton, UBS and JPMorgan have launched comparable products. The total market size of tokenized real-world assets (RWA) has surpassed USD 30 billion, driven by strong momentum since the beginning of 2025.⁴

What is genuinely decisive here is not scale but the fact that traditional financial institutions have begun offering their products on permissionless blockchains. The European Union's MiCA (Markets in Crypto-Assets) framework has anchored this trend in a regulatory foundation and established a global reference point.⁵ The fact that issuers without MiCA authorization will be excluded from the European market as of 1 July 2026 turns this framework into a structural milestone. The operational consequence of this development is visible in settlement times: the cycle traditionally referred to as T+2 or T+1 can become instantaneous in tokenized assets. For the first time, the foundational functions of capital market infrastructure — custody, clearing and reporting — have approached the threshold of redefinition.

This picture poses an indirect but concrete question for publicly listed companies in Türkiye: once the global institutional investor adapts to a tokenized portfolio with T+0 settlement, where will markets still operating in the traditional architecture stand in terms of liquidity premium and risk perception?

For emerging markets, the answer to this question will produce direct valuation consequences. The framework for crypto-asset service providers whose foundations were laid by Law No. 7518 in July 2024 and matured through Communiqués III-35/B.1 and III-35/B.2 issued in March 2025 has placed the first building blocks of institutional infrastructure in this domain in Türkiye.⁶

The migration of assets onto the chain gains its full meaning only when money itself is brought onto the same foundation. The third wave is advancing precisely along this axis of programmable money. Stablecoins typically crypto assets pegged to fiat currencies such as the US dollar or the euro have established a striking presence in global payment volumes. Their aggregate market capitalization has settled at approximately USD 300 billion; according to Visa data, global stablecoin transaction volume reached the level of USD 33 trillion in 2025, although estimates filtered for bots and automated transactions bring this figure into a band of roughly USD 10 to 28 trillion. Even so, there is little dispute that a scale comparable to traditional payment networks has been attained.⁷ Visa and Mastercard have initiated integration work with stablecoin-based solutions, while PayPal has launched a stablecoin pegged to its own brand.

In the United States, the GENIUS Act (Public Law 119-27), which entered into force on 18 July 2025, established the first comprehensive federal stablecoin legislation and introduced structural obligations including one-to-one reserve backing, monthly reserve reporting, attestation by audit firms and managerial accountability. In parallel, central banks have been working on their own digital currencies. The Central Bank of the Republic of Türkiye's Digital Turkish Lira Project is continuing its subsequent phases following the publication of initial pilot results.

³ <https://app.rwa.xyz/treasuries>

⁴ <https://app.rwa.xyz>

⁵ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32023R1114>

⁶ <https://www.resmigazete.gov.tr/eskiler/2024/07/20240702-17.htm>; <https://www.resmigazete.gov.tr/eskiler/2025/03/20250313-5.htm>

⁷ <https://www.weforum.org/stories/2026/02/new-research-answers-fundamental-questions-about-stablecoins/>

The European Central Bank has advanced its digital euro work to a later stage, and China's digital yuan project (e-CNY) though still officially in pilot status had reached USD 2.37 trillion in cumulative transaction volume and 230 million individual wallets by the end of November 2025, becoming the largest central bank digital currency experiment in the world.

For a publicly listed company, programmable money carries the potential to affect a broad spectrum of activities from treasury management to dividend distribution, from bond coupon payments to supplier settlement. Payments automated through smart contracts add a new layer of transparency to the cash flow communication of investor relations. For Türkiye, the potential benefits of a stablecoin architecture stand out along three axes. The first is cross-border payment efficiency: in an export-oriented economy, the compression of foreign-exchange settlement times into seconds can deliver measurable relief on working capital. The second is reserve transparency: the standards introduced by frameworks such as the GENIUS Act and MiCA one-to-one reserve backing, monthly reporting and independent attestation provide the ground on which Turkish issuers can speak the same language as global institutional investors. The third is forward-looking competitive positioning: in an environment where global payment infrastructure is gradually migrating onto a digital-asset foundation, economies that adapt early to this architecture can benefit from a liquidity premium, while those that fall behind may face structural disadvantages. For these reasons, the stablecoin debate should be regarded in Türkiye not merely as a regulatory agenda item but as a priority subject in preparing the capital markets for the future. For an in-depth assessment of these issues from a Turkish perspective, see Karahan and Akgiray (2026), [Keeping Capital Onshore: The Case for a Domestic Stablecoin in Türkiye](#), CARF White Paper Series No. 01.

What the three waves share is that they do not displace the foundational concepts of investor relations practice. Coherent narrative, well-timed disclosure and the trust relationship built with the investor remain irreducible domains of value creation that cannot be automated.

What is changing is the complexity of the technical environment in which these values are produced. The analytical capacity delivered by technology when used properly carries the potential to free the investor relations officer from operational burdens and to elevate the role into a more strategic position. For Turkish publicly listed companies, the genuine question of the coming period is not whether they will use artificial intelligence, whether they will invest in tokenized products, or whether they will adopt the Digital Turkish Lira. The question is how investor trust will be preserved within the new equation that these three waves bring. The answer requires both the strengthening of technical literacy and the conscious tracking of ethical and legal frameworks. This twofold preparation carries decisive weight for the global competitiveness of our national capital markets and for the long-term valuation of our listed companies.