

SECTOR IN-DEPTH

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Public Finance – US

Interconnected digital platforms unlock value for issuers but cybersecurity is crucial

Summary

Digital convergence – the simultaneous adoption of and interaction between artificial intelligence (AI), digital financial infrastructure and data-driven systems – is expanding opportunities for US public finance issuers by reshaping core operations and financial management. These technologies can improve efficiency, decision-making and service delivery. However, greater reliance on interconnected digital platforms also elevates exposure to operational disruption, compliance risk and reputational harm. Whether digital convergence ultimately strengthens issuer resilience or introduces new volatility will depend on governance quality and the effectiveness of foundational controls, including cybersecurity.

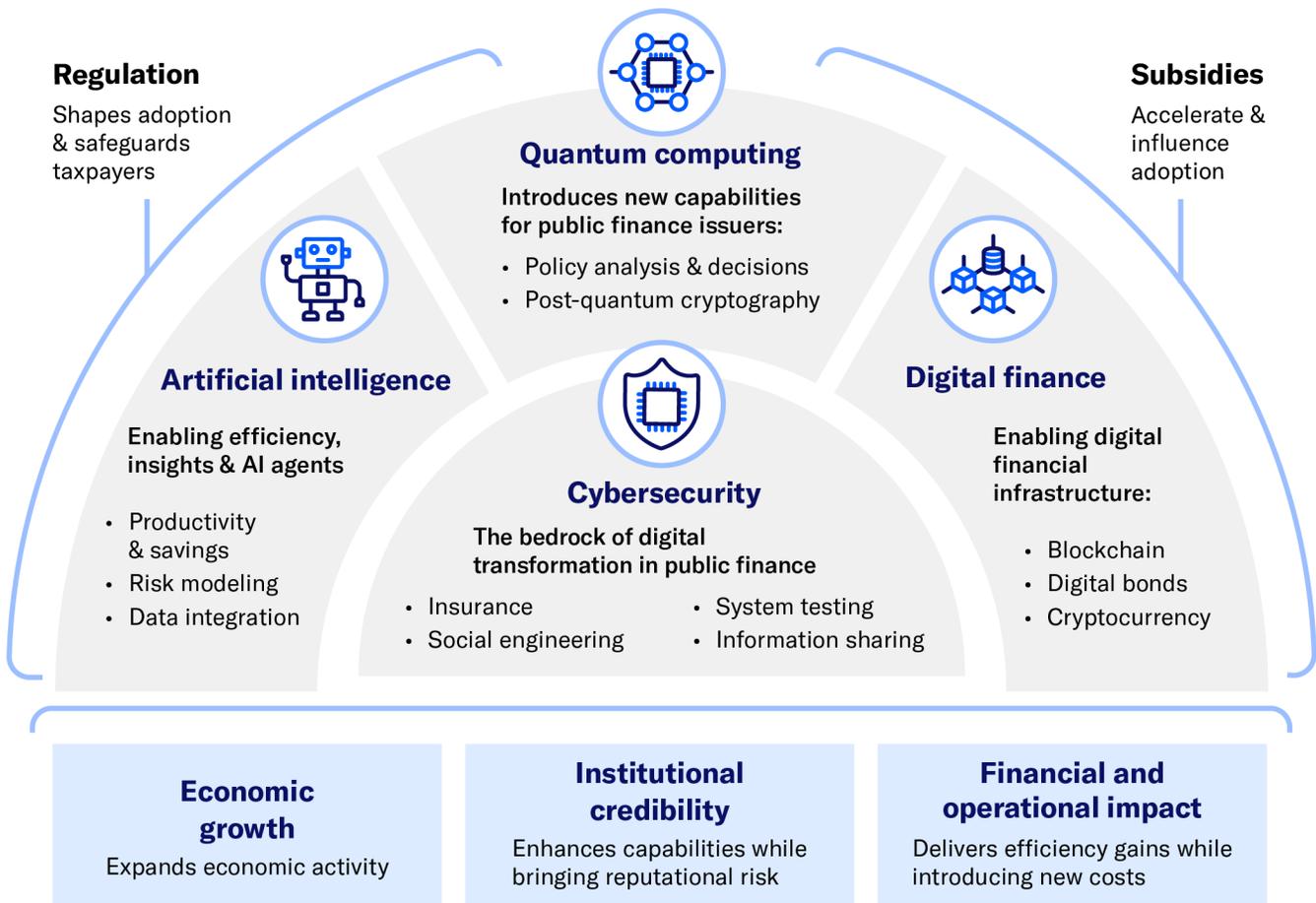
- » **Digital convergence enables operational and financial gains for public finance issuers.** Digital convergence is enabling new approaches to service delivery, financial management and economic support. Adoption of AI alongside digital financial infrastructure and shared data environments can improve efficiency, analytical capacity and financial execution, even where systems are not yet fully integrated. This facilitates productivity gains, cost efficiencies and faster decision-making as platforms become more interconnected.
- » **Regulation and subsidies will serve as balancing forces and determine the pace of adoption.** Regulation and subsidies will determine the pace and effectiveness of digital adoption, as regulation shapes compliance costs and baseline protections, while targeted federal and state subsidies can temporarily reduce entry costs and accelerate adoption for select issuers. Together, these policy levers guide issuer strategy, budget priorities and risk management, and help determine when digital economy benefits are realized.
- » **Cybersecurity will determine whether digital convergence creates value or volatility.** As digital convergence expands issuer capacity, cybersecurity will determine whether emerging technologies deliver durable benefits or introduce volatility. Strong cyber controls support safe adoption of AI, digital finance and future quantum technologies, while weak risk management increases the likelihood that innovation introduces credit risk rather than value. Cybersecurity is thus both the gateway to adoption and the safeguard of issuer resilience.
- » **Emerging technologies enhance capabilities but increase operational, governance, and reputational risks.** Emerging technology adoption can improve efficiency, financial flexibility, and economic participation, but it also elevates operational, governance, and reputational risks as reliance on digital systems grows. For public sector issuers, failures – from cyber incidents to flawed AI or digital finance disruptions – can quickly translate operational and governance weaknesses into reputational damage that erodes trust and credit strength, underscoring the importance of strong governance and transparency.

Digital convergence enables operational and financial gains for public finance issuers

Digital convergence is reshaping how US public finance issuers operate by linking artificial intelligence, digital financial infrastructure and shared data environments into a more integrated operating model. Together, these technologies expand issuer capacity across service delivery, financial management and economic development. AI improves productivity, forecasting and decision-making; digital financial platforms streamline payments, funding and settlement; and data connectivity allows these tools to interact across departments and functions. When effectively governed, this convergence can translate into stronger operating performance, greater financial flexibility and enhanced institutional capacity – key credit considerations – while laying the groundwork for longer-term participation in the digital economy.

Exhibit 1

The converging components of the digital economy have the potential to yield benefits



Source: Moody's Ratings

While these technologies are advancing along different timelines and are often deployed independently today, their value increasingly lies in how they will position issuers to link operational insight, financial execution and data governance over time. Operational gains from AI adoption are [already translating into measurable fiscal benefits](#), particularly where deployment extends into core management functions. Municipal use of AI has moved beyond pilots toward scalable applications in budgeting, permitting, procurement and infrastructure management.

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[Olympia, WA](#) (Aa2), for example, adopted AI-powered priority-based budgeting, identifying more than 30 low-impact, high-cost programs and uncovering up to \$28 million in potential savings, roughly 10% of annual general fund revenue. Other issuers have reduced permitting timelines, automated service dispatch and improved asset monitoring, easing labor constraints and reallocating staff toward higher-value work. These efficiencies are credit-positive when they slow expenditure growth, improve budgetary discipline and enhance management's ability to respond to economic or operational stress.

Meanwhile, digital financial infrastructure – particularly [blockchain-enabled platforms](#) – can reduce friction across financial transactions, including payments, settlement and record-keeping, by employing smart contracts to automate processes and reduce reliance on intermediaries. Digital bonds can also improve borrower market access when paired with emerging sources of on-chain liquidity, including tokenized US Treasuries and dollar-backed stablecoins.

[State initiatives illustrate this crossover](#). Wyoming's dollar-backed Frontier Stable Token (FRNT), fully reserved with short-term US Treasuries, is designed to enable low-cost, instantaneous dollar transactions and could support investment in tokenized securities, including municipal bonds. By linking digital issuance with tokenized cash equivalents, issuers can streamline settlement and clearing, lower minimum investment thresholds and broaden participation beyond traditional investor pools.

Separately, evolving market structures, including private credit, highlight how [technology-enabled market crossover](#) can expand access to liquidity, especially for smaller or unrated borrowers. While these tools are not yet central to public finance, they illustrate how this technology can incrementally improve market access, liquidity management and execution efficiency without displacing traditional funding channels.

Over time, the compounding effects of convergence – particularly across AI, blockchain and emerging technologies – could further expand issuer capacity, provided foundational controls keep pace. AI and blockchain [are mutually reinforcing when linked by data](#): AI can help identify smart contract errors or security weaknesses, while blockchain can improve data integrity, auditability and transparency for AI-driven processes. The eventual interaction between these technologies supports financial execution by modernizing how issuers access, move and manage capital, even where systems are not fully integrated.

Looking further ahead, quantum technology underscores the longer-term upside of convergence. According to McKinsey¹, quantum computing is estimated to generate \$1.3 trillion in global economic impact by 2035, and while practical applications remain uneven, it has the potential to [dramatically accelerate certain AI-driven analytics](#) and optimization tasks. For public finance issuers, this trajectory points to progressively faster decision cycles, more sophisticated risk modeling and improved capital and infrastructure planning. These are benefits that accrue most clearly to issuers with strong governance, financial capacity and cyber resilience.

Regulation and subsidies will serve as balancing forces and determine the pace of adoption

Public policy will play a decisive role in determining how quickly and unevenly digital convergence takes hold across US public finance, acting both as a brake on adoption and as a catalyst for it. Regulation can slow deployment when it raises compliance costs, introduces legal uncertainty or imposes unclear standards. Conversely, well-defined rules, minimum requirements, or mandates can accelerate adoption by reducing uncertainty and giving issuers confidence to invest. This dual role is increasingly evident in artificial intelligence and digital finance, where policy clarity – rather than technological capability alone – often determines whether issuers proceed, pause or scale back implementation.

At the state and local level, regulatory momentum is accelerating, but uneven scope and limited operational guidance are creating divergent adoption paths across issuers. AI-related legislation has proliferated across all 50 states (see Exhibit 2), yet requirements vary widely in focus and rigor. Some states have adopted targeted constraints, such as [Kansas's](#) (Aa2 stable) restrictions on state system access to certain AI platforms, while others, including [Kentucky](#) (Aa2 stable), have moved further by mandating ethical and transparent AI policies for state agencies. This variability translates directly into differing compliance burdens and timelines for implementation.

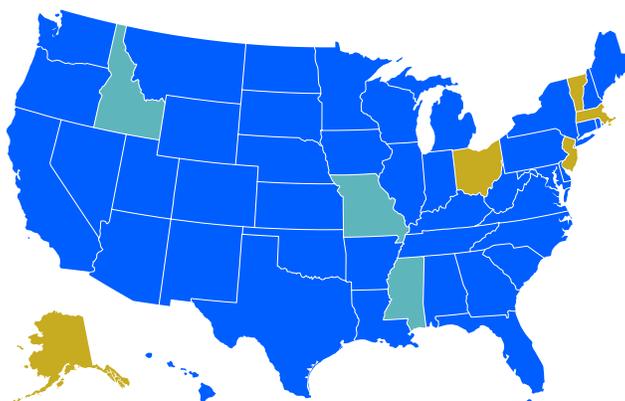
At the same time, operational guardrails remain sparse at the local level – [only about 47% of regional and local governments globally have formal policies governing AI use](#) – which increases execution risk and can delay safe rollouts until governance frameworks are established. Digital finance faces a similar patchwork, where differences in the clarity of state-level rules influence where pilots emerge first and how quickly issuers move from experimentation to production use.

Exhibit 2

State-level AI legislation is accelerating, but operational gaps remain

Status of AI regulation legislation by state (year-end 2025)

- Enacted
- Failed
- Pending



Sources: National Conference of State Legislatures and Moody's Ratings

Federal policy and subsidies increasingly provide a counterweight to regulatory friction by clarifying expectations and lowering barriers to entry, but they also introduce timing and compliance risk. Federal oversight of digital assets remains in flux, creating uncertainty around disclosure, compliance costs and capital markets innovation that can delay or re-sequence issuer technology investments. At the same time, federal incentives are becoming more explicit and sizable, shaping issuer priorities as much as the underlying technologies themselves.

Federal subsidies have played a meaningful but targeted role in shaping digital adoption, particularly in cybersecurity. Over the past four years, the [\\$1 billion State and Local Cybersecurity Grant Program \(SLCGP\)](#) provided funding primarily to local governments, with at least 80% of state allocations required to pass through to municipalities and a quarter of those funds directed to rural jurisdictions. As of August 2024, 839 projects supporting core cybersecurity functions had been funded nationwide, helping smaller and resource-constrained issuers establish baseline digital defenses, and ultimately enabling participation in the digital economy.

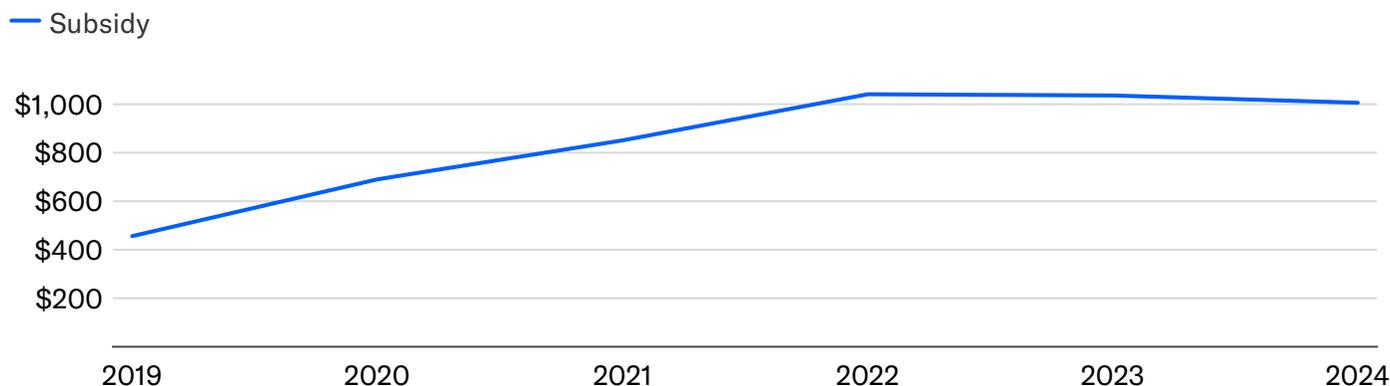
Quantum computing illustrates how subsidies can extend beyond risk mitigation to support broader economic growth [across public finance sectors](#). Federal subsidies under the National Quantum Initiative exceeded \$1 billion annually from 2022 through 2024 (see Exhibit 3), more than doubling since 2019, while the CHIPS and Science Act has accelerated public-private partnerships that pull investment forward and reduce entry costs for participating jurisdictions. These incentives are catalyzing private investment, workforce development, and high-value job creation, with benefits extending beyond states and local governments to public universities and healthcare systems.

Public finance enterprise participation illustrates how these subsidies translate into real economic activity. In [Illinois](#) (A2 stable), state incentives helped anchor the Illinois Quantum and Microelectronics Park, a campus that links private technology firms with the [University of Illinois](#) (Aa2 stable) and other academic partners to support research, workforce development, and commercialization. In [Ohio](#) (Aaa stable), a public-private partnership involving [IBM](#) (A3 stable) and the [Cleveland Clinic](#) (Aa2 stable) enabled the deployment of a private-sector-managed quantum computer on a healthcare campus, positioning the institution to advance medical research while supporting regional job creation and innovation.

These examples highlight how federal, state, and local subsidies are enabling enterprises to serve as economic and research hubs within emerging quantum ecosystems, even as direct government use cases remain longer-dated. Still, while these coordinated subsidies can generate meaningful spillover effects and regional economic diversification, differences in eligibility and structure mean that adoption speeds and economic benefits will remain uneven across issuers.

Exhibit 3

Federal quantum subsidies more than doubled from 2019 through 2024
 Federal quantum computing subsidies through the National Quantum Initiative (\$ millions)



Sources: National Quantum Initiative and Moody's Ratings

Cybersecurity posture determines whether digital convergence creates value or volatility

Cybersecurity is the operational foundation that determines whether digital convergence strengthens issuer resilience or introduces volatility. As issuers adopt artificial intelligence, digital finance infrastructure and data-driven systems, cybersecurity becomes a gating factor that enables safe deployment at scale. Issuers with strong cyber governance, continuous system testing and incident-response readiness are better positioned to integrate emerging technologies without disrupting operations or eroding public trust. By contrast, weak cyber controls turn innovation into a source of operational, financial and reputational risk – particularly as the simultaneous use of these technologies increases the surface area for cybercriminals to target for attacks.

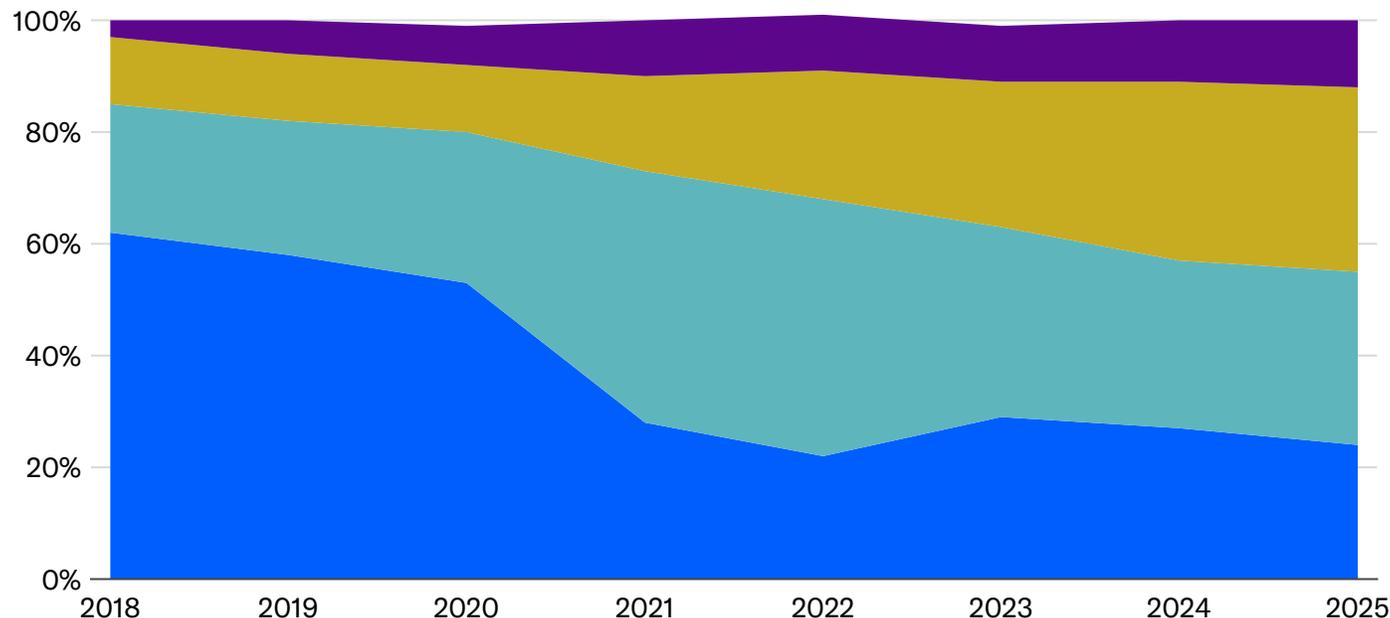
Differences in cyber readiness are already shaping which issuers can move first – and move safely – into the digital economy. States that consistently rank higher in cyber resilience², such as [Colorado](#) (Aa1 stable), have been among the most active adopters of emerging technologies, including AI use cases, cryptocurrency tax payments, and participation in quantum and advanced computing initiatives. Other early movers, such as [New Hampshire](#) (Aa1 stable), have entered the digital asset space through cryptocurrency reserve policies, underscoring the need for secure custody, wallet management and access-control frameworks. State-level digital finance programs – such as Wyoming's FRNT – similarly require robust cybersecurity to protect reserves, private keys, and transaction integrity. Where these foundations are in place, issuers can pursue innovation with greater confidence; where they are not, adoption slows or introduces outsized risk.

Strong cybersecurity frameworks reduce long-term costs and stabilize credit outcomes by limiting disruption and preventing the accumulation of technical debt. Public finance issuers are devoting a growing share of IT budgets to cybersecurity (see Exhibit 4), reflecting recognition that prevention and preparedness are more cost-effective than recovery. These investments support faster technology deployment by allowing issuers to modernize systems without compounding legacy vulnerabilities, while information-sharing practices reduce correlated risks across the sector.

Exhibit 4

The share of IT budgets allocated to cybersecurity has grown markedly since 2020
 45% of public finance issuers report investing at least 8% of their IT budget on cybersecurity in 2025

■ 0%-4% ■ 4%-8% ■ 8%-15% ■ more than 15%



Public finance issuers include Regional and Local Governments (RLGs) and Healthcare, Housing and Higher Education 2025 cyber survey respondents.
 Source: Moody's Ratings

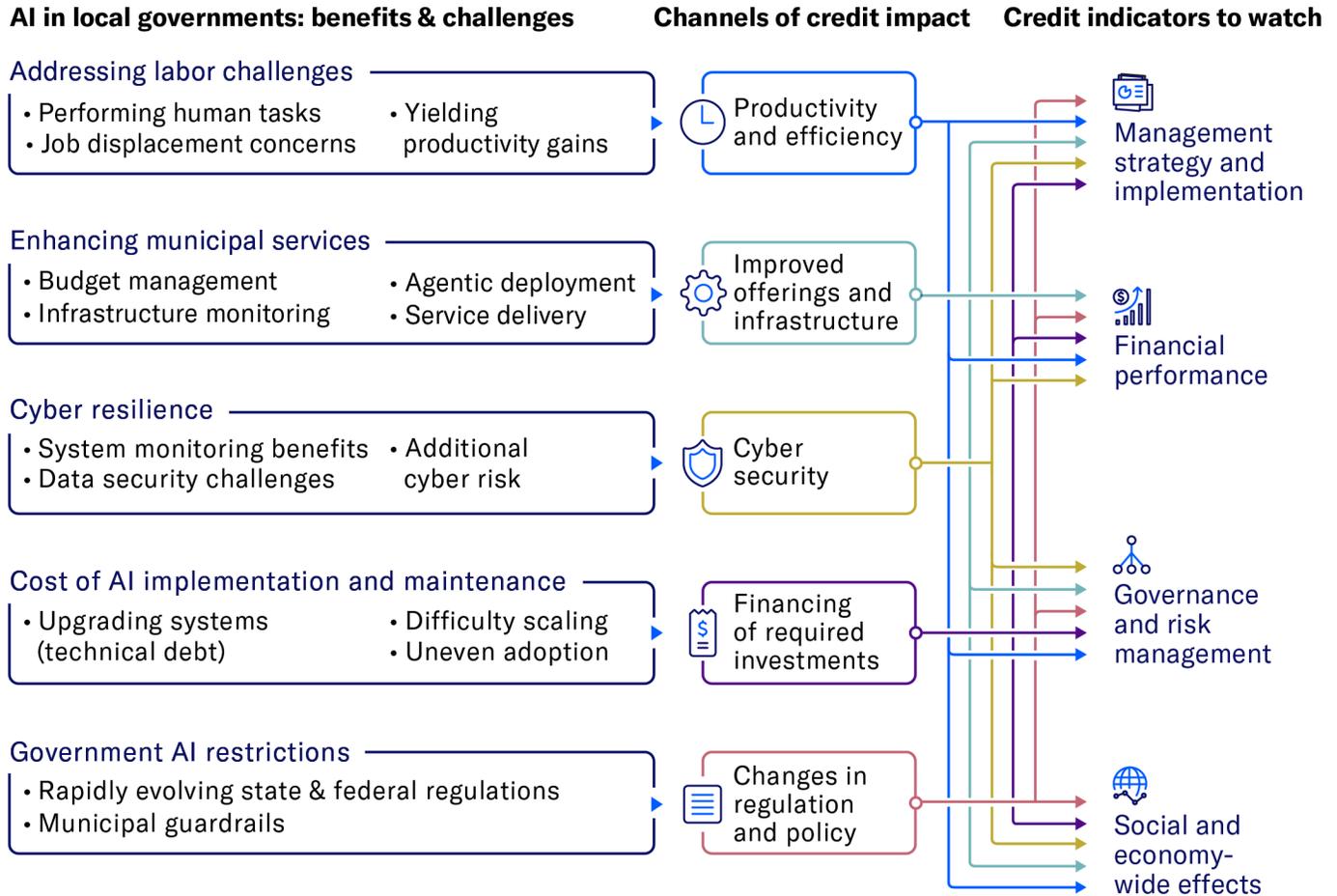
Recognizing that more resources must be allocated to cybersecurity is increasingly important as AI becomes embedded in core municipal operations (see Exhibit 5), expanding digital footprints and making governments more attractive as ransomware targets. Recovery costs for cyberattacks exceeded \$2.8 million for state and local governments in 2024. [Similar exposure exists in higher education](#), where decentralized IT governance and widespread AI use across academic units expand digital footprints and heighten vulnerability to costly cyber incidents.

Cyberattacks also have [implications for municipal bond issuance](#). According to a September 2024 article published by the Federal Reserve Bank of Chicago, data breaches result in primary bond market yields that are six-to-seven basis points higher than in the absence of a data breach – representing an average increase of 2.4% – ultimately raising borrowing costs for municipal borrowers³.

Looking ahead, advances in quantum computing [will eventually render current encryption obsolete](#), creating systemic exposure for issuers that delay upgrading controls. In this context, cybersecurity is not merely defensive – it is the safeguard that determines whether digital convergence enhances resilience or introduces new volatility.

Exhibit 5

AI is increasingly embedded in municipal operations, affecting finances, economies and governance



Source: Moody's Ratings

Emerging technologies enhance capabilities but increase operational, governance, and reputational risks

As public finance issuers adopt emerging technologies at scale, operational complexity and execution risk increase, while greater visibility amplifies the reputational consequences of failure. Digital tools such as AI systems, digital payment platforms and tokenized financial infrastructure are often public-facing by design, which means errors, outages or flawed outputs are immediately visible to constituents, investors and regulators.

Large-scale deployments magnify this effect. [San Francisco's](#) (Aa1 stable) enterprise-wide rollout of generative AI tools to nearly 30,000 employees, for example, required updated transparency and accountability guidelines precisely because risk to public trust increases alongside scale and usage. In environments where institutional credibility underpins governance and market access, even short-lived technology failures can erode confidence quickly.

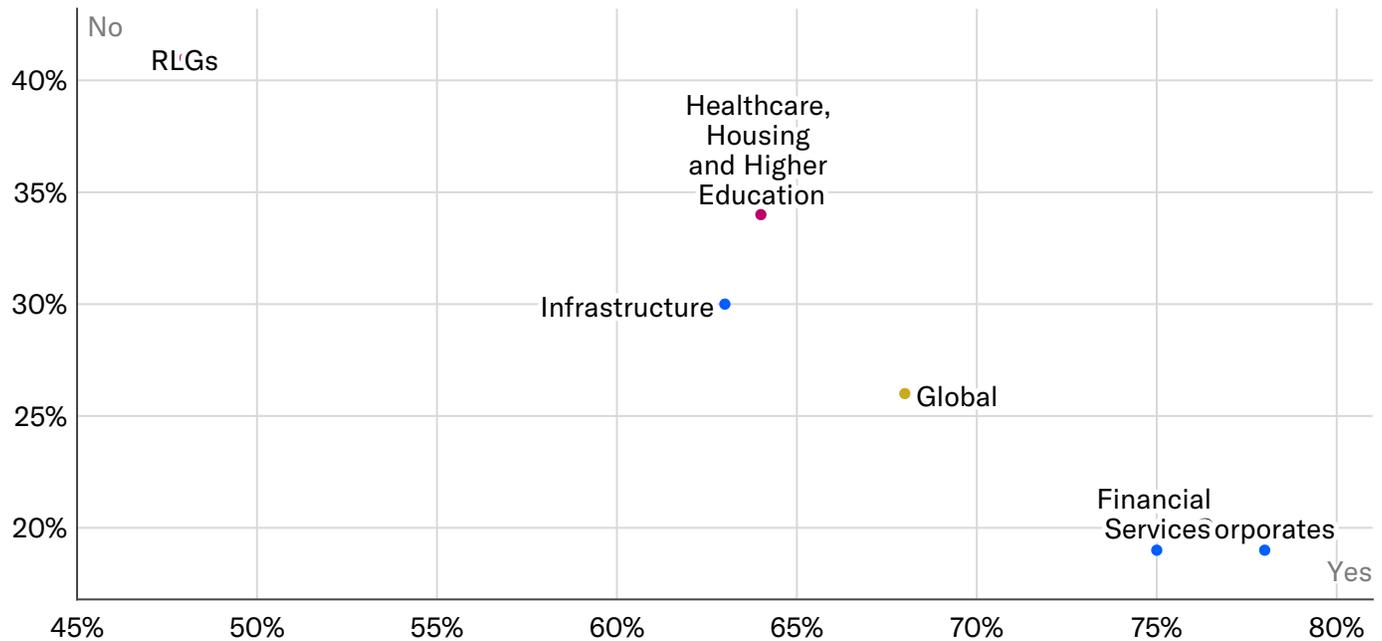
Governance gaps heighten operational, compliance, and reputational risks by leaving issuers exposed as adoption accelerates. Many public finance issuers are deploying high-visibility technologies without mature policy frameworks to guide their use or manage failure modes. Fewer public finance issuers have formal policies governing AI use than issuers in other sectors (see Exhibit 6), and fewer maintain multiyear cyber road maps to anchor digital transformation over time. This disconnect between visibility and governance increases the likelihood that technology-driven missteps – such as biased AI outputs, service disruptions or data handling errors – translate operational and governance failures into reputational damage rather than isolated operational issues. In this

context, reputational risk becomes a transmission channel through which operational weaknesses affect management credibility and stakeholder trust.

Exhibit 6

Fewer public finance issuers have policies governing the use of AI than any other sector

Percent of cyber survey respondents with policies governing the use of AI



Public finance issuers include Regional and Local Governments (RLGs) and Healthcare, Housing and Higher Education respondents.

Source: Moody's Ratings

Digital finance initiatives further elevate reputational exposure because financial losses and service disruptions are highly salient to the public. States exploring stablecoins or enabling cryptocurrency payments face heightened scrutiny if wallet-level vulnerabilities, custody failures or system outages affect user funds or transactions. Similarly, governments that hold cryptocurrency reserves are exposed to irreversible loss if private keys are compromised through hacking or mismanagement, creating reputational fallout alongside financial damage.

Clear governance structures, transparent oversight and well-communicated safeguards are therefore essential to ensure that adoption strengthens rather than weakens trust. Issuers that proactively manage these risks can translate digital adoption into improved services and stronger institutional credibility. Those that do not risk turning innovation into a source of volatility that undermines public confidence and credit strength.

Endnotes

1 What is Quantum Computing?, McKinsey, April 2024

2 According to our 2025 cyber survey results

3 [Exposure to Cyber Risk and Inadequate Cybersecurity Regulations: Evidence from Municipalities](#), Federal Reserve Bank of Chicago, September 2024

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