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The Strategic Management Challenge of Adopting the Digital Euro: A Conceptual Framework

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ABSTRACT

The digital euro confronts the European Central Bank with a strategic management challenge requiring coordination of competing stakeholder interests rather than optimal technical design.

This study develops a conceptual framework identifying how sovereignty preservation, financial stability maintenance, and citizen adoption constitute an irreducible strategic trilemma where maximizing any single objective undermines at least one other.

The research employs systematic literature synthesis across economics, law, and policy documents published between 2020 and 2025. It applies thematic analysis to extract recurring tensions and map operational domains where these tensions manifest as concrete governance challenges.

The framework posits that sovereignty established through legal tender mandates is insufficient without voluntary adoption; that stability mechanisms such as holding limits safeguard bank liquidity but diminish user appeal; and that feature designed to drive adoption may inadvertently destabilize commercial bank funding.

The trilemma operates across four interdependent domains: ecosystem architecture where two-tier distribution models must align bank incentives with policy objectives, value proposition and adoption where privacy protections must balance user demands against regulatory compliance, financial de-risking where holding limits must contain deposit substitution without eliminating transactional utility, and governance where multi-institutional coordination must build democratic legitimacy across ECB, Parliament, and national authorities. Evidence from comparative CBDC initiatives demonstrates that technical availability does not guarantee adoption, with Nigeria's eNaira

achieving minimal usage despite early launch while China's e-CNY requires sustained government mandates and merchant incentives.

The framework establishes that digital euro success depends critically on organizational capabilities for iterative calibration, dynamic stakeholder negotiation, and continuous adjustment rather than one-time design optimization. Central banks must evolve from monetary policy specialists into ecosystem orchestrators managing permanent tensions rather than eliminating them.

INTRODUCTION

The European payments ecosystem is undergoing a fundamental transformation that challenges the traditional role of public money and central bank authority. As Cipollone (2024) argues in their keynote address on monetary sovereignty, Europe faces a confluence of disruptive forces, including the rise of BigTech payment platforms, increasing fragmentation across national payment systems, and heightened geopolitical tensions that expose dependencies on non-European financial infrastructure. These developments threaten to erode the European Central Bank's capacity to ensure that public money remains the foundation of monetary exchange in an increasingly digital economy. The digital euro initiative emerges as a strategic response to preserve monetary sovereignty and guarantee broad acceptance of central bank money in digital form. Yet sovereignty alone cannot guarantee success. The Bank for International Settlements' [BIS] (2022) comprehensive analysis of CBDC user needs reveals that adoption depends critically on meeting citizen and merchant expectations around convenience, cost, privacy, offline capability, and universal acceptance. CBDCs face a classic two-sided market problem where users will not adopt without merchant acceptance, and merchants will not invest in infrastructure without user demand. This coordination challenge transcends technical feasibility and requires solving complex network effects dynamics while building trust through demonstrated privacy protections and reliability.

The global CBDC landscape further illustrates the strategic complexity facing central banks worldwide. Genc and Takagi's (2024) systematic literature review demonstrates that most claimed benefits of CBDCs remain largely theoretical and empirically unverified, including financial inclusion improvements, enhanced anti-money laundering compliance, and superior monetary policy transmission. Conversely, risks such as bank disintermediation, privacy erosion, and operational vulnerabilities are concrete and material. Political economy factors drive CBDC initiatives as much as economic rationale, with competition against BigTech platforms, responses to China's e-CNY rollout, and concerns about stablecoin proliferation shaping policy agendas (Genc and Takagi, 2024). This political economy dimension transforms what might appear as a technical payment innovation into a complex institutional challenge requiring coordination across diverse stakeholders with potentially conflicting interests.

The critical question facing the European Central Bank [ECB] is not whether a digital euro is technically feasible but whether the chosen design can align the divergent interests of banks, payment service providers, merchants, regulators, and citizens while preserving financial stability. Niepelt's (2023a) incisive critique warns that the digital euro risks being "dead on arrival" precisely because current design choices prioritize bank protection over user value. Holding limits intended to prevent deposit flight constrain transactional utility, while remuneration policies favor

commercial banks at the expense of citizen incentives. The result may be a CBDC that satisfies regulatory stability objectives but fails to attract meaningful adoption. This could render the sovereignty ambitions ineffective. The ECB's (2022b) official objectives document acknowledges these tensions explicitly. It outlines goals that span preserving the monetary anchor, ensuring strategic autonomy, fostering innovation, protecting privacy, and complementing physical cash. However, what remains underexplored is how the ECB will strategically manage the inherent trade-offs embedded in these objectives. Privacy protections that satisfy citizens may complicate AML compliance, features attractive to users may threaten bank funding models, and distributed governance that includes commercial intermediaries may dilute central bank control.

Mooij's (2023) comparative analysis of digital euro design architectures illuminate how seemingly technical choices carry profound strategic implications. Whether the ECB opts for account-based or token-based models, centralized or intermediated infrastructures, and tiered or uniform remuneration structures will fundamentally shape stakeholder incentives and institutional legitimacy. These are strategic decisions with path-dependent consequences for ecosystem dynamics, competitive positioning, and political sustainability. Existing literature has thoroughly analyzed the economic rationale for CBDCs, modeled financial stability implications, and debated legal frameworks. Hoffmann et al.'s (2022) foundational ECB working paper outlines the core motivations, including the decline of cash, platform dominance, and monetary sovereignty, while quantifying the risks associated with bank disintermediation and systemic stability. Legal scholars have examined questions of mandates, monetary object definitions, and central bank powers. However, the digital euro is predominantly analyzed as an economic instrument or legal construct rather than as a strategic management challenge.

The literature offers limited insight into how the ECB should orchestrate stakeholder alignment, build organizational capabilities for ecosystem governance, or navigate legitimacy-building in a contested political environment. Questions of phased implementation, incentive design for complementors, communication strategies to build public trust, and adaptive governance mechanisms remain peripheral to existing analyses. Empirical evidence on user preferences, adoption drivers, and behavioral responses to privacy-utility trade-offs is sparse. Yet these unknowns define the strategic uncertainty the ECB must manage. This paper addresses that gap by reframing the digital euro as a strategic management problem requiring active orchestration across three interdependent imperatives. It asks how the ECB can strategically manage the tensions among sovereignty, stability, and adoption, and what organizational capabilities and governance mechanisms success requires. The central argument is that the digital euro confronts the ECB with a strategic trilemma where these three objectives cannot be fully maximized simultaneously and require continuous strategic trade-offs.

1. METHODOLOGY

This paper employs a conceptual framework development approach grounded in systematic literature synthesis to address a critical gap in central bank digital currency research. The research adopts an integrative and interpretive stance, synthesizing insights across disciplinary boundaries to construct a novel analytical framework that complements rather than replaces existing economic and legal analyses. This approach is appropriate given that the digital euro remains in design and pilot phases, meaning empirical data on adoption behavior, stakeholder responses, and governance effectiveness are not yet available for hypothesis testing.

The analysis draws systematically from four categories of authoritative sources to ensure comprehensive coverage and analytical rigor. Academic literature includes peer-reviewed journal articles and working papers from institutions including the European Central Bank, Bank for International Settlements, and leading economics and law journals published between 2020 and 2025. Policy documents encompass ECB official publications such as key objectives statements, occasional papers on safeguards and holding limits, and progress reports, alongside European Parliament in-depth analyses and SUERF policy briefs that provide a critical assessment of ECB proposals. Official institutional communications include keynote speeches by ECB Executive Board members and central bank reports from comparative jurisdictions, alongside industry analyses. These provide external perspectives that challenge official narratives and highlight potential implementation obstacles.

Source selection followed explicit criteria prioritizing relevance to digital euro design, adoption dynamics, financial stability implications, or governance challenges, temporal currency with preference for materials published since 2020 to capture recent policy evolution, and institutional authority requiring sources from central banks, peer-reviewed outlets, or recognized policy research institutions. The analytical process employed thematic synthesis, beginning with the identification of dominant theoretical perspectives within existing literature, the extraction of recurring tensions among policy objectives, and the mapping of operational domains where these tensions manifest as concrete design and governance challenges. This methodology enables rigorous conceptual contribution while acknowledging that empirical validation of the framework's propositions must await post-implementation data collection and analysis.

2. THE DIMENSIONS OF THE STRATEGIC TRILEMMA

The digital euro initiative confronts the European Central Bank with three interdependent strategic imperatives that cannot be simultaneously maximized. This creates a fundamental management challenge that extends beyond technical design or economic optimization. These three dimensions (i.e., sovereignty, stability, and adoption) form a strategic trilemma where advancing any single objective tends to compromise at least one other, requiring continuous strategic trade-offs rather than technical optimization.

2.1 The Sovereignty Imperative

The first dimension is the sovereignty imperative, which centers on maintaining monetary control and strategic autonomy in an increasingly digital payments landscape. Cipollone's (2024) keynote address frames sovereignty as essential to preserving the ECB's authority. They warn that Europe risks dangerous dependence on non-European payment providers, including BigTech platforms and international card schemes, if it fails to provide a credible public digital alternative. The argument positions sovereignty as a concrete question of strategic autonomy in payments infrastructure, protecting citizens' ability to transact in central bank money and preventing fragmentation of the euro area's monetary anchor. The digital euro emerges as a public good complementing physical cash by ensuring universal access to risk-free public money in digital form, thereby preserving the ECB's capacity to anchor monetary exchange even as cash usage declines. Without such intervention, Europe could become structurally vulnerable to foreign platforms

dominating retail payments, creating risks of policy dependency and reduced regulatory control over critical financial infrastructure (BIS, 2024). The ECB's key objectives document formalizes this logic by listing sovereignty and strategic autonomy as core project goals, emphasizing the need to reduce fragmentation in European payments while ensuring pan-European reach and avoiding reliance on non-EU infrastructures. The imperative of sovereignty thus represents both a defensive move against external dependency and a positive assertion of public authority over the monetary system's digital future.

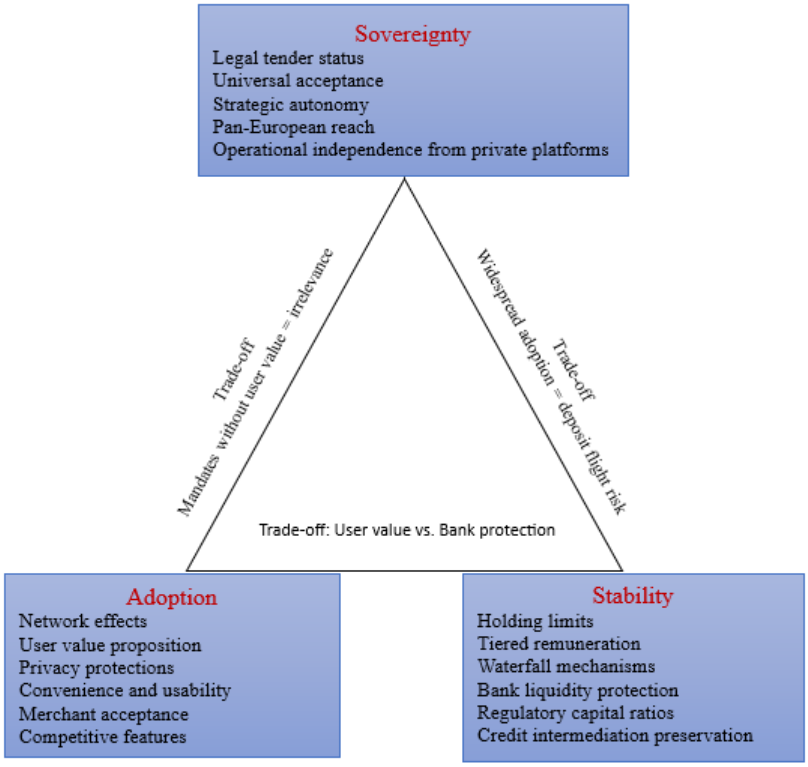


Figure 1. The Digital Euro Strategic Trilemma
Source: Author`s Construct (2025)

2.2 The Stability Imperative

The second dimension, the stability imperative, addresses the financial risks that digital central bank money poses to commercial banking and credit intermediation. Asserting sovereignty through widespread digital euro provision introduces significant financial stability concerns that directly constrain design choices. Hoffmann et al.'s (2022) comprehensive modeling of bank intermediation dynamics demonstrates that widespread CBDC adoption could trigger substantial deposit substitution as households and firms shift funds from commercial bank accounts to digital euro holdings, thereby eroding banks' cheap and stable funding base. This deposit flight would impair banks' capacity for credit provision while raising their funding costs, with potentially severe implications for financial stability and real economy lending. The analysis concludes that safeguards, including holding limits and tiered remuneration structures, are essential policy instruments to mitigate these disintermediation risks. The ECB's subsequent quantitative simulations provide empirical support by modeling liquidity impacts under various holding limit scenarios. Without safeguards, the digital euro could trigger deposit outflows sufficiently large to force banks into greater reliance on central bank funding, potentially destabilizing their balance sheets and threatening regulatory capital ratios. With moderate holding limits of approximately

three thousand euros per person, liquidity risks remain contained, and banks' regulatory ratios stay comfortably above minimum requirements. The simulations introduce a waterfall mechanism whereby funds exceeding individual holding limits are automatically redirected to linked commercial bank accounts, balancing transactional usability with stability preservation. Zellweger-Gutknecht et al.'s (2021) legal analysis reinforces this imperative by emphasizing that the ECB's mandate to provide ideal monetary objects must coexist with its primary obligation to maintain price stability and banking system health. The stability imperative, therefore, operates as both an economic constraint and a legal obligation. This necessitates careful calibration of features that might otherwise enhance user adoption but simultaneously acknowledging that measures protecting financial stability by limiting store-of-value functions constrain competitive appeal.

2.3 The Adoption Imperative

The third dimension is the adoption imperative. It concerns the critical challenge of achieving voluntary widespread usage by citizens and merchants, without which sovereignty and monetary anchor objectives become meaningless. Adoption emerges as perhaps the most critical dimension because a digital euro that nobody uses cannot fulfill its policy purposes, regardless of how well it satisfies stability constraints or sovereignty mandates. Niepelt's (2023) incisive critique argues that the digital euro risks being "dead on arrival" precisely because current design priorities privilege bank protection over user value creation. Holding limits that prevent meaningful savings storage, unattractive or zero remuneration that offers no financial incentive for adoption, and potential merchant restrictions that fragment acceptance networks collectively undermine the digital euro's competitive positioning against established private alternatives, including credit cards, debit cards, and BigTech wallets. Without compelling features that deliver tangible user benefits, rational consumers will simply continue using convenient private solutions, leaving the digital euro as an underutilized policy instrument irrelevant to actual payment behavior. The SUERF policy brief questions whether strict safeguards are proportionate to actual risks and whether they create collateral damage by making the digital euro insufficiently useful for everyday transactions (Niepelt, 2023). The BIS' (2021) comprehensive user needs analysis provides empirical grounding by identifying core requirements that determine CBDC success. These include convenience, low transaction costs, strong privacy protections, offline functionality for resilience, and genuine universal merchant acceptance. Adoption depends fundamentally on network effects operating across a two-sided market where consumers will not adopt without broad merchant acceptance and merchants will not invest in acceptance infrastructure without assured consumer demand. CBDCs must compete against highly refined private payment solutions optimized for user experience over decades. This means adoption will fail if the digital euro merely matches existing alternatives rather than exceeding them on dimensions users value. The digital euro must be widely usable across the entire euro area and framing broad adoption as central to preserving the euro's role as a monetary anchor.

2.4 The Relationship among the Dimensions

These three dimensions form an irreducible strategic trilemma because advancing any single imperative tends to compromise at least one other. Sovereignty demands legal tender status, universal acceptance, and operational independence from private platforms (Cipollone, 2024), yet sovereignty through mandate alone is insufficient without voluntary adoption by citizens and

merchants. Stability necessitates safeguards to prevent destabilizing deposit flights from commercial banks to the central bank, which could trigger credit contraction and liquidity crises. Holding limits and tiered remuneration can effectively contain bank liquidity risks, but at the cost of reducing the digital euro's transactional utility and competitive appeal (ECB, 2023). Adoption requires network effects, compelling features, and trust. Yet achieving adoption may require features such as higher holding limits or attractive remuneration that increase stability risks or complicate regulatory compliance. These tensions are not resolvable through optimal technical design but require strategic management through iterative calibration, ecosystem orchestration, stakeholder negotiation, and dynamic adjustment as the initiative unfolds.

3. MANAGING THE TRILEMMA THROUGH FOUR STRATEGIC DOMAINS

The digital euro's strategic trilemma manifests across four interconnected domains that require distinct yet coordinated management approaches. Each domain presents specific tensions between competing objectives and demands different organizational capabilities from the ECB and its partners.

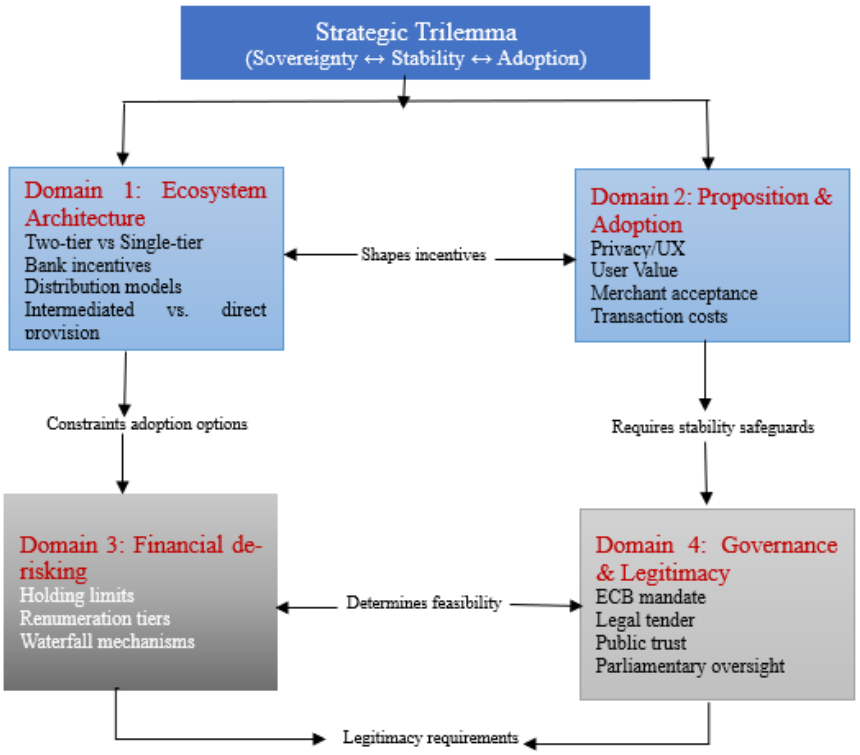


Figure 2. Four Domains of Strategic Challenge
Source: Author`s Construct (2025)

3.1 Domain 1: Ecosystem Architecture and Stakeholder Symbiosis

The fundamental architectural choice between distribution models shapes the entire stakeholder ecosystem and determines whether the digital euro can achieve symbiotic relationships among the ECB, commercial banks, and payment service providers. The strategic implications of two-tier versus single-tier models show that these are not merely technical alternatives but foundational governance choices with profound consequences for intermediation and legitimacy (Mooij, 2023). The two-tier model, where the ECB issues digital euros while banks and PSPs handle distribution, preserves existing financial intermediation relationships and leverages private sector expertise in customer interfaces, compliance, and service innovation.

Conversely, a single-tier model providing direct ECB accounts for all citizens would maximize monetary sovereignty and central bank control but risks massive bank disintermediation and operational overload for an institution lacking retail banking infrastructure and expertise. The architectural choice thus embeds a fundamental trade-off between preserving financial stability through intermediated structures and maximizing sovereign control through direct provision.

Commercial banks may resist or systematically underinvest in digital euro distribution if the product threatens their deposit base and payment revenues without compensating benefits (Niepelt, 2023). Banks will rationally deprioritize promoting a product that cannibalizes their profitable businesses unless the ECB designs remuneration structures, distribution fees, or ancillary service opportunities that align bank incentives with public policy objectives. Without carefully calibrated safeguards, banks would face significant deposit outflows that impair their funding stability and credit provision capacity (ECB, 2023). This necessitates intermediate distribution combined with holding caps and waterfall mechanisms that automatically redirect excess balances to commercial bank accounts. This would preserve banks' roles in funding and credit intermediation while providing sufficient digital euro functionality for payments. Industry commentary shows that ECB design priorities appear tilted toward protecting banks from disintermediation, which reduces systemic risk but potentially compromises user value and adoption prospects (Ledger Insights, 2023). The strategic challenge in this domain is designing hybrid architectures that achieve symbiosis rather than conflict. This requires a two-tier structure that preserves bank participation and stability while incorporating incentives and governance mechanisms ensuring banks actively promote digital euro adoption and the ECB retains ultimate control over monetary policy objectives.

3.2 Domain 2: Value Proposition and Citizen Adoption

Achieving widespread voluntary adoption requires the digital euro to offer compelling value to both citizens and merchants across multiple dimensions while successfully navigating the privacy-compliance tension and overcoming network effects barriers that plague two-sided markets. Core adoption drivers include convenience that matches or exceeds existing payment methods, low or zero transaction costs, strong privacy protections that build trust, offline capability for resilience and inclusion, and genuine universal merchant acceptance that eliminates the need to carry alternative payment methods (BIS, 2021). CBDCs will fail if they do not meet real user needs, regardless of their theoretical benefits or policy rationales. This emphasizes that adoption depends on solving network effects challenges, where consumers will not adopt without merchant acceptance and merchants will not invest in acceptance infrastructure without assured consumer demand. Privacy must be a design priority. All features must remain compatible with anti-money laundering and counter-terrorism financing regulations (ECB, 2022b). This envisions a tiered privacy architecture where low-value offline payments enjoy higher anonymity while larger transactions face stricter oversight. This tiered approach attempts to balance user demands for privacy with regulatory requirements for transparency. Yet the calibration of thresholds and the credibility of privacy protections remain critical adoption determinants. Holding limits preventing meaningful savings storage, unattractive or zero remuneration offering no financial incentive, and potential merchant restrictions fragmenting acceptance networks collectively undermine competitive positioning against credit cards, debit cards, and BigTech wallets that have been optimized for user experience over decades. Comparative evidence from international CBDC pilots reinforces these adoption concerns by demonstrating that technical availability does not automatically translate into usage. China's e-CNY benefits from government mandates and merchant incentive programs, yet still faces adoption challenges. Sweden's e-krona pilot emphasizes integration with existing payment ecosystems, and the Bahamas' Sand Dollar achieved early deployment but limited scale beyond niche use cases. The contrast between Ghana's eCedi and Nigeria's eNaira proves particularly instructive, as Nigeria's early launch achieved minimal adoption due to poor merchant integration, suboptimal user experience, and weak incentive structures, while Ghana's more cautious approach emphasizes ecosystem

readiness before broad rollout. The strategic challenge in this domain is ensuring the digital euro delivers privacy and usability that rival or exceed private alternatives while securing merchant acceptance through incentives or mandates. Network effects require simultaneous buy-in from both sides of the market through carefully orchestrated launch strategies rather than assuming adoption will automatically follow availability.

3.3 Domain 3: Financial De-risking and Stability Preservation

Safeguarding financial stability while maintaining sufficient usability to enable adoption requires sophisticated calibration of holding limits, remuneration structures, and circuit breaker mechanisms that contain risks without eliminating value. Caps around three thousand euros per person effectively contain liquidity risks and prevent destabilizing runs on commercial banks while still permitting meaningful transactional usage (ECB, 2023). Without such safeguards, widespread digital euro adoption could trigger deposit substitution at scales that force banks to contract lending, raise funding costs, and potentially breach regulatory capital requirements. This would create systemic financial stability risks that would compel regulatory intervention. Waterfall mechanisms should be considered as technical solutions where individual balances exceeding holding limits are automatically redirected to linked commercial bank accounts. This would preserve transactional functionality for users while mechanically preventing excessive deposit flight that would destabilize bank funding. There are certain economic mechanisms through which CBDC adoption reduces banks' deposit funding base and raises credit provision costs (Hoffmann et al., 2022). While tiered remuneration and holding limits can mitigate these risks, they simultaneously reduce the digital euro's appeal as a store of value and potentially as a payment instrument if limits are set too restrictively. However, the ECB possesses both the authority and obligation to ensure the availability of ideal monetary objects, including digital equivalents to declining cash (Zellweger-Gutknecht et al., 2021). Yet this mandate must coexist with the ECB's primary treaty objective of maintaining price stability, which requires preserving the banking system through which monetary policy is transmitted. The stability safeguards, therefore, are necessary complements to digital euro issuance rather than optional design features. The European Parliament's assessment critiques ECB progress reports for insufficient transparency regarding how safeguards affect incentive compatibility and whether strict limits impose collateral damage on adoption prospects while protecting bank interests (Niepelt, 2023). The strategic challenge in this domain is calibrating safeguards that preserve financial stability and satisfy legal mandates without rendering the digital euro so constrained that it fails to attract meaningful adoption. This requires dynamic adjustment mechanisms that can tighten or relax limits based on observed usage patterns, stress indicators, and adoption trajectories rather than static rules that may prove either excessively permissive or overly restrictive as circumstances evolve.

3.4 Domain 4: Governance, Legitimacy, and Implementation

The digital euro's ultimate viability depends on establishing robust governance frameworks and institutional legitimacy across a multi-year transformation involving diverse stakeholders and complex political dynamics beyond technical or economic design. The ECB's mandate extends beyond conventional monetary policy to ensure the availability of ideal monetary objects encompassing both physical cash and credible digital equivalents (Zellweger-Gutknecht et al., 2021). This positions the digital euro as a constitutional obligation rather than a discretionary innovation. Governance structures must simultaneously safeguard price stability, provide legal certainty for users and intermediaries, and establish legitimacy by demonstrating that the digital euro serves genuine public interest rather than institutional self-preservation. Legal design choices are not merely technical parameters. They are fundamental determinants of whether citizens perceive the digital euro as a legitimate public good deserving trust or as an intrusive surveillance instrument threatening privacy. While the ECB possesses clear authority to issue money under EU treaties, broader questions, including legal tender status, mandatory merchant acceptance obligations, and liability frameworks, require legislative action by the European Parliament and Council rather than unilateral central bank decisions (Zellweger-Gutknecht, 2021). This

competence allocation frames the digital euro as inherently a multi-institutional governance challenge requiring coordination across the ECB, Commission, Parliament, Council, and national authorities rather than a project the central bank can execute independently. Niepelt (2023) critiques the insufficient articulation of political oversight mechanisms and ambiguity about mandate boundaries when retail CBDC introduction carries profound fiscal, distributional, and sovereignty implications that require robust parliamentary scrutiny and democratic legitimacy. Successful CBDC implementation requires multi-year timelines, extensive stakeholder engagement, and phased rollouts with success factors (Tripathi, 2025). These include robust legal frameworks, sustained stakeholder alignment, public trust built through transparency about data handling, and pilot phases enabling iterative learning. The strategic challenge in this domain emphasizes that the digital euro's success hinges as much on institutional legitimacy and governance capacity as on economic optimization or technical sophistication.

4. DISCUSSION AND IMPLICATIONS

The four domains of the conceptual framework are deeply interdependent rather than separable design spaces that can be optimized sequentially. The trade-offs between adoption and stability cannot be resolved in isolation because safeguards protecting banks, such as holding limits and conservative remuneration, simultaneously reduce user appeal and competitive positioning against private alternatives (Hoffmann et al., 2022). Incentive compatibility across stakeholders is central to success, meaning that even technically sound designs will fail if banks and payment service providers lack motivation to actively distribute and promote digital euro functionality (Niepelt, 2023). In that sense, privacy protections, usability features, and stability safeguards must be calibrated together as an integrated system rather than independent parameters adjusted separately (ECB, 2022b; 2023). Success is therefore contingent on strategic orchestration capabilities. It includes aligning diverse stakeholder interests through governance mechanisms and remuneration structures, calibrating safeguards dynamically based on observed adoption patterns and stress indicators rather than static rules, and embedding legitimacy through legal clarity about rights and obligations combined with transparent communication that builds public trust. The framework suggests that the digital euro's viability depends less on achieving optimal values for any single design parameter than on the ECB's organizational capacity to manage cross-domain trade-offs iteratively through feedback loops and adjustment mechanisms. This would ensure that sovereignty imperatives, stability constraints, and adoption incentives reinforce rather than systematically undermine one another throughout implementation.

The digital euro must overcome payment fragmentation and reduce foreign dependency by functioning as a unifying public good accessible across the entire euro area. Yet, adoption will only occur if the system delivers tangible benefits, including strong privacy protections, low transaction costs, reliable offline functionality, and universal merchant acceptance that eliminates the need for alternative payment methods. This tension implies the ECB cannot rely on unilateral design authority or mandates alone. It must instead adopt a dynamic, iterative management approach that treats banks, payment service providers, merchants, and citizens as co-creators rather than passive recipients of centrally imposed solutions. The ECB's role transforms from traditional monetary policy implementation to ecosystem orchestration. It sets overarching standards, establishes safeguard boundaries, and provides infrastructure foundations while enabling and incentivizing private actors to innovate complementary services, distribution channels, and user interfaces. Strategic flexibility through modular design, continuous stakeholder engagement through formal consultations and pilot mechanisms, and transparent communication about trade-

offs become essential organizational capabilities. These capabilities enable the ECB to balance sovereignty objectives, stability requirements, and adoption imperatives throughout the multi-year implementation trajectory. No amount of technical sophistication or policy mandate can substitute for these foundational requirements.

CONCLUSION

The digital euro represents a fundamental test of whether central banks can evolve from monetary policy specialists into ecosystem orchestrators capable of managing multi-stakeholder transformations. This paper establishes that technical design and economic modeling, while necessary, cannot resolve the inherent political economy tensions embedded in the initiative. The strategic trilemma identified here is not a problem awaiting solution but a permanent management condition requiring institutional capabilities that central banks have not historically cultivated. The ECB must develop comfort with managing rather than eliminating tensions, embracing iterative governance rather than definitive rules, and accepting that stakeholder alignment demands continuous negotiation rather than one-time design choices.

Three critical empirical questions remain unanswered and will determine success or failure. First, what remuneration structures and ancillary service opportunities align commercial bank incentives sufficiently to ensure active promotion rather than passive resistance or quiet sabotage of digital euro distribution? Second, at what precise threshold do holding limits transition from prudent stability safeguards into adoption-killing constraints that render the digital euro competitively irrelevant against private payment alternatives? Third, can phased rollouts generate feedback loops rapid enough to enable meaningful course correction, or do early design choices create path dependencies that lock in suboptimal outcomes with irreversible consequences? These questions demand empirical investigation as implementation proceeds, particularly through careful monitoring of pilot programs and comparative analysis of stakeholder responses across diverse contexts.

Future research should extend beyond Eurozone members to examine monetary regimes where governance participation and policy sovereignty diverge. Montenegro, Kosovo, San Marino, and Andorra represent euroized economies using the euro without ECB membership, creating contexts where governance and legitimacy challenges intensify while ecosystem architecture options narrow. These economies face banking systems and payment infrastructure impacts without a voice in design decisions, offering natural experiments for testing how framework dimensions operate under incomplete sovereignty. Comparative studies across China's e-CNY, Sweden's e-krona, Nigeria's eNaira, and other sovereign CBDC projects would validate whether the trilemma structure proves generalizable or requires adaptation to different political economies and development contexts. Stakeholder-focused research examining merchant acceptance decisions, bank distribution strategies, and citizen privacy-utility trade-offs through surveys and behavioral experiments would ground abstract propositions in empirical evidence.

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