Issues in Information Systems
Volume 26, Issue 1, pp. 472-485, 2025

DOI: https://doi.org/10.48009/1_iis_135

Sharing economy: towards a hybrid regulation theory

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Abstract

This paper examines the regulatory challenges and theoretical shortcomings in the governance of the sharing economy (SE). While earlier research focused on its disruptive innovation, recent research stresses the need for balanced governance frameworks. This research establishes a multi-tiered hybrid regulatory framework based on emerging literature, encompassing adaptive governance, game-theoretic models, and redistributive justice. The study identifies three main key issues in the SE: (1) negative externalities & consumer and supplier protection, (2) unfair competition, innovation hurdles and slow regulatory response, and (3) fragmented regulatory landscapes. These categories are aligned with five strategic alternative regulatory approaches: (1) legal formalism, (2) redistributive justice, (3) self-regulation through industry associations, (4) game-theoretic interaction, and (5) experimental governance. These approaches have not been comprehensively examined in existing literature. The study aims to advance SE by proposing a layered hybrid regulatory model that bridges existing gaps, provides implementation recommendations, identifies limitations, and offers a practical roadmap for SE regulation.

Keywords: sharing economy, regulatory landscape, regulatory challenges, alternative approaches, layered hybrid regulation theory

Introduction

Consumers have increasingly created value by sharing human and physical resources through technology-based social platforms. This shift has contributed to the rise of "collaborative consumption," also referred to as the "sharing economy" or "peer-to-peer consumption." Hamari et al. (2016) define it as a "peer-to-peer-based activity of obtaining, giving, or sharing access to goods and services, coordinated through community-based online services."

Enabled by digital technologies, the sharing economy has given rise to new business models that allow users to offer or access a wide range of services. These include renting residential or office spaces for short durations, sharing personally owned assets, using ride-hailing platforms for local transportation, participating in marketplaces that issue temporary licenses, hiring individuals for everyday tasks or professional services, and utilizing peer-to-peer lending systems (Katz, 2015). This model is characterized by its focus on access rather than ownership. Hence, this access-based model attracts consumers who do not want to—or cannot afford to—own some of the products or services individually.

The sharing economy has created efficiency and chances for innovation, although it has also presented considerable regulatory issues. Schechner et al.'s 2016 Wall Street Journal article illustrated Uber's legal challenges with regulatory bodies globally. Increasingly, companies such as Airbnb and Lyft have encountered conflicts with outdated regulatory frameworks that were not designed for platform-based

business models. These conflicts have led to significant confusion in the marketplace, raising enduring concerns about consumer safety, labor protections, and fair competition.

In addition to the rapid pace of technological change, there is a mismatch between traditional regulatory paradigms and the nature of platform-based transactions. Regulatory approaches based on centralized control, inflexible rules, or broad prohibitions often struggle to address the dynamic, cross-jurisdictional, and rapidly evolving nature of the SE. Consequently, regulatory gaps such as fragmented labor laws and inconsistent tax policies create confusion and hinder the sector's sustainable development.

To address these gaps, this paper focuses on identifying and categorizing the regulatory issues faced by the SE in addition to synthesizing and assessing the solutions proposed in recent literature. Hence, the paper aims to lead the conceptualization of a "Layered Hybrid Regulatory Approach" that integrates legal formalism regulation, redistributive justice, co/self-regulation, game-theoretic and experimental governance strategies to close the existing regulatory gap. This approach would satisfy all stakeholders and participants in the sharing economy by ensuring fair competition, fostering sustainable growth, and protecting customers and participants.

The following sections provide a comprehensive background of the SE and its regulatory challenges, followed by a literature review of the key issues and regulatory strategies. Based on this synthesis, the paper introduces a revised theoretical framework that integrates five complementary regulatory perspectives, legal formalism, redistributive justice, self-regulation, game-theoretic interaction, and experimental governance. The model is operationalized through a roadmap for implementation and testing and finally concludes with a discussion of the paper’s contributions and limitations.

Background and literature review

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The rapid expansion of the SE over the past decade has transformed industries such as hospitality, transportation, finance, and labor. Botsman and Rogers (2010) characterized collaborative consumption as structured systems where people share, trade, lend, rent, gift, or swap resources. They emphasized that its appeal lies in reducing the personal and financial burden of ownership while also reducing environmental impact, offering an attractive alternative to traditional consumption methods. While early writers such as Botsman and Rogers (2010) and Hamari et al. (2016) primarily commemorated SE’s disruptive power, the way scholars discuss the SE has shifted in important ways since the concept first gained attention. What started as enthusiasm for efficiency and peer-to-peer models has morphed into a more severe conversation about fairness, accountability, and the balance of power between platforms, users, and governments. It has become clear over time that these platforms raise a series of controversial questions, especially for regulators and the public interest. According to Codagnone and Martens (2016) and Ranchordás (2015), retroactive application of traditional laws often produces inconsistent enforcement and unintended consequences. Ter Huurne et al. (2017) emphasize trust as a foundational issue in the SE by identifying transparency and accountability gaps.

It is important to note that more recent studies have started to unpack these tensions in more specific ways. Gauß et al. (2024) investigated the potential viability of applying municipal rental caps, often regarded as a basic policy tool, to enable SE platforms to perform without disrupting the local housing markets, which challenges the common perception that regulation always hinders innovation. It demonstrates that carefully planned policies can foster more ethical and robust platform practices while sustaining economic growth. Nieuwland and Van Melik (2020) also argue that formal regulatory interventions, when tailored to local contexts and designed with flexibility, do not necessarily hinder innovation; instead, they can improve platform accountability and foster more equitable urban environments. Moreover, Veretennikova and Selezneva (2023) apply game-theoretic modeling to analyze the strategic behavior of regulators and SE platforms. Their findings show that regulatory outcomes are shaped by the expectations and adaptive strategies of both parties, rather than by one-sided enforcement. By mapping potential payoffs for compliance and non-compliance, the model demonstrates how regulators can design smarter, incentive-aligned policies that improve public outcomes, such as reducing congestion or pollution, without inhibiting innovation. This underscores the importance of viewing regulation as a dynamic, reciprocal process that responds to evolving platform behavior.

Building on these insights, this paper argues for a layered hybrid regulatory framework that acknowledges the distinct roles of SE actors, the diversity of sector-related risks, and the global-local split in enforcement. The next section outlines three regulatory issue classes identified in the literature, which subsequently form the foundation for matching appropriate regulatory perspectives.

Regulatory challenges in the sharing economy

The sharing economy raises several issues that call for a social response. These issues include customer and supplier protection, negative externalities, unfair competition, slow regulatory response, and different regulatory landscapes. To understand the need for a new regulatory framework in the sharing economy, this paper describes the issues faced. Table 1 details the issues introduced by SE. In the following sections, a brief illustration of the various regulatory issues, categorized into three classes that represent distinct domains of concern, is provided. Each class is composed of key issues commonly cited in recent scholarship, with examples and supporting literature.

Negative externalities & consumer and supplier protection

One major concern in the sharing economy revolves around the emergence of new safety, quality, and labor vulnerabilities. Platforms such as Airbnb and Uber have significantly altered service delivery paradigms in the housing and transport sectors. However, they often operate outside conventional regulatory oversight, which gives rise to serious concerns regarding consumer and supplier protection.

Foremost among these issues is the lack of standardized liability frameworks, which leads to uncertainty in dispute resolution and risk allocation. In the absence of consistent safety protocols or accountability mechanisms, consumers have reported numerous cases of inadequate accommodation, harassment, or fraudulent activities. Research by Edelman and Geradin (2015) illustrates how platforms bypass accountability by positioning themselves merely as intermediaries, thereby limiting their liability in harmful transactions. They describe that regulating agencies should enforce laws in the sharing economy to protect customers and maintain minimum safety standards. They address externalities that cause harm to third parties due to the lack of contractual relationships. Examples given by Edelman and Geradin are externalities that arise from underinsured Uber drivers, neighbors who are affected by Airbnb tenants, and rental seekers who are negatively affected by increasing rent due to a supply shortage in the housing market.

Traditional companies must maintain licenses and safety standards, which are not consistently enforced on sharing economy companies.

Similarly problematic is the ambiguous classification of platform workers. Most sharing economy companies designate their workers as independent contractors, denying them access to labor protections such as minimum wage, benefits, and collective bargaining rights. This reclassification of labor contributes to a growing population of insecure gig workers, amplifying social vulnerabilities. Frenken and Schor (2019) note that this regulatory gap extends inequality, as the burden of flexibility is disproportionately assumed by laborers with little institutional support. These workers often lack access to social safety nets, such as health insurance or unemployment benefits, making them more vulnerable to economic shocks. Additionally, because they are paid per task and lack legal recourse in disputes, they are often compelled to accept unfavorable conditions out of necessity. The absence of institutional support for such workers not only deepens socioeconomic disparities but also contributes to long-term labor market instability.

Furthermore, platform reviews and ratings, often plugged as self-regulatory tools, do not provide robust consumer protection. These systems can be manipulated and lack transparency, raising concerns over their reliability and fairness. The cumulative result is a regulatory space where consumers and suppliers bear the risks that traditional regulatory systems were designed to mitigate.

Unfair competition, innovation hurdles & slow regulatory response

The rise of SE platforms has also disrupted the competitive landscape. While their innovation is often admired, these platforms frequently benefit from regulatory arbitrage, operating in gray zones that allow them to bypass the legal constraints imposed on traditional service providers. Unfair competition is a recurring theme in regulatory critiques. Ride-sharing platforms, for instance, often operate without the licenses, insurance mandates, or safety requirements that govern traditional taxi services. This creates an unfair market in which traditional companies are required to abide by stricter rules and absorb higher costs related to licensing, insurance, and third-party requirements, while SE companies can avoid these costs and offer lower prices. Cannon and Summers (2014) argue that such discrepancies undermine the regulatory equality that markets require for fair competition. The resulting market distortion not only disadvantages legacy operators but also compromises public trust.

Posen (2015) explains that the conflict between regulators and the sharing economy exists because most regulations in the hotel and transportation industry were written decades ago and still apply to incumbents as well as new market entrants, even though the sharing economy could not have been imagined at the time. As such, sharing economy companies are forced to comply with outdated rules, which could ultimately hinder innovation and are often protectionist toward incumbents (Edelman & Geradin, 2015).

Moreover, Batjer (2015) highlights that regulatory agencies are slow to respond to new market entrants from the SE that disrupt traditional industries. The regulatory gap in controlling and monitoring the new business model causes an extended period of uncertainty for all stakeholders. Regulatory bodies often lack access to complete data and are partially reliant on information provided by SE platforms or publicly available sources. This information asymmetry influences critical issues such as consumer safety and the ability to hold platforms accountable. While peer-to-peer review systems are sometimes employed to fill the void, they are insufficient and only address surface-level accountability. These systems fail to provide consistent oversight or comprehensive protection and are therefore seen as partial and flawed solutions. Additionally, the agility of SE platforms often falls behind the responsiveness of public regulation. Lawmakers, bound by bureaucratic inertia and constrained resources, struggle to keep up with the evolving platform-based business models. Gauß et al. (2024) emphasize how delayed legislative responses allow platforms to launch themselves in markets before oversight mechanisms are established, leading to

backdated and often debatable regulatory interventions. Rahman and Thelen (2019) add that platform firms often shape the terms of their governance by exploiting first-mover advantages in a weakly regulated environment. As a result, not only do regulators fall behind, but their eventual responses are reactive, fragmented, and less effective.

Innovation, inconsistently, may be hindered by this uneven playing field. Traditional firms, constrained by compliance requirements, find themselves at a disadvantage relative to unregulated digital competitors. This deters investment in innovation by rule-abiding firms and incentivizes a race to the bottom in terms of regulatory compliance.

Fragmented regulatory landscapes protection

The final class of challenges pertains to the fragmented and often contradictory nature of regulatory regimes across jurisdictions. SE platforms operate across local, national, and international boundaries, creating legal mismatches that hamper effective oversight. One prominent issue is cross-jurisdictional inconsistency. Platforms like Airbnb and Uber must navigate widely varying regulations depending on the city or country of operation. Nieuwland and Van Melik (2020) demonstrate how local governments, including those in New York, Paris, and Amsterdam, have implemented widely varying regulatory responses to Airbnb, ranging from registration requirements to outright bans. This divergence creates a fragmented policy environment, complicating compliance with platforms and raising operational costs for hosts.

In addition, the absence of centralized policy coordination leads to duplicated efforts, conflicting rules, and regulatory arbitrage. Policymakers often act in isolation, resulting in a lack of harmonization that benefits platform firms but confuses users and complicates enforcement. Wu and Lin (2023) find that fragmented regulation not only escalates administrative burdens but also discourages sustainable innovation, especially among smaller platforms. Beyond structural issues, enforcement is also a challenge. Local governments often lack the resources or technical capacity to monitor platform behavior effectively. This enforcement deficit creates a two-tiered system where compliance becomes optional for well-resourced firms but mandatory for smaller, local providers. The challenge is worsened by limited resources and weak enforcement capabilities. For example, Gerstein and Gong (2022) show that municipal enforcement remains inconsistent across municipalities, leading to uneven rule application across cities.

Together, these three classes of issues, relating to externalities, competition, and governance fragmentation, highlight the multifaceted regulatory space in which SE platforms operate. Understanding these challenges is a necessary foundation to proposing a hybrid regulatory solution that is both theoretically grounded and practically actionable. The next section discusses alternative solutions from existing literature.

Table 1. Classes of Regulatory Issues

Class	Specific Issues	Description	Examples	Authors
Negative Externalities & Protection	Safety gaps, labor misclassification, weak accountability	Gaps in consumer/labor protection	Underinsured drivers, gig worker precarity, fake reviews	Edelman & Geradin (2015), Frenken & Schor (2019)
Unfair Competition & Innovation Hurdles	Uneven regulatory burden, legacy rules, data opacity	Legacy firms overregulated, SE platforms advantaged	Hotel vs Airbnb taxes, Uber vs taxi regulation mismatch	Cannon & Summers (2014), Batjer (2015), Gauß et al. (2024)
Fragmented Landscapes	Local vs national inconsistencies, weak enforcement	Platforms exploit legal mismatches across jurisdictions	Airbnb restricted in Amsterdam but unregulated nearby	Nieuwland & Van Melik (2020), Wu & Lin (2023), Gerstein & Gong (2022)

Regulatory perspectives and hybrid governance approaches

This section introduces five regulatory perspectives that serve as the building blocks of the proposed hybrid framework. Each approach is linked to specific challenges identified in the previous section and supported by relevant literature. These perspectives, while distinct in their orientation and scope, are designed to interact cohesively when applied in tandem. A summary of the perspectives, along with their pros/cons, is provided in Table 2, which outlines key regulatory approaches.

Legal Formalism

Legal formalism is a foundational approach that relies on clear, codified rules and top-down enforcement. It aims to reduce ambiguity and ensure equal treatment by applying standardized legal frameworks. In the SE context, this approach addresses consumer safety, taxation, labor classification, liability, and taxation. Edelman and Geradin (2015) and Posen (2015) argue that formal regulations can level the playing field between traditional firms and SE platforms by removing regulatory gray zones. However, overly rigid enforcement may stifle innovation and burden smaller actors. Rahman and Thelen (2019) emphasize the difficulty of applying pre-digital legal standards to dynamic platform ecosystems, highlighting the need for more responsive adaptation of formal rules.

In practice, legal formalism has led to mandates such as licensing requirements for short-term rentals in major cities, mandatory insurance policies for gig workers, and taxation schemes for peer-to-peer transactions. For instance, Nieuwland and Van Melik (2020) detail how New York City imposed zoning restrictions, safety inspections, and licensing mandates on Airbnb hosts to align short-term rentals with traditional housing laws. These formal interventions aim to uphold public interest without banning the platform, demonstrating how legal formalism is being adapted to SE contexts. Formalism ensures baseline protection but is often reactive and slow to evolve with new business models. These efforts reflect the intention to bring SE actors under the legal umbrella traditionally reserved for formal businesses, albeit with adjustments for scale and capacity.

Redistributive justice

Redistributive justice emphasizes equity and fairness in the allocation of risks and rewards. This perspective is particularly relevant to labor rights and economic disparities intensified by the SE model. Frenken and Schor (2019) and Scholz (2017) argue that SE platforms transfer costs by reducing traditional labor protections and redistributing risk from companies to workers, often worsening economic inequality. Gerstein and Gong (2022) examine how local governments in cities like New York and Seattle have implemented redistributive policies, such as gig-worker benefit funds, portable health coverage, and minimum pay standards, to address the social costs carried by platform workers. They observe, however, that enforcement remains inconsistent: local authorities face capacity limitations, and platforms sometimes resist compliance, resulting in uneven rule application across municipalities.

In San Francisco, the Office of Labor Standards Enforcement proposed a surcharge on platform revenues, designed to fund a pool for gig worker benefits (San Francisco Budget and Legislative Analyst, 2020). The city also proposed measures requiring platforms to share algorithmic decision-making information that influences work distribution, particularly relevant to fairness in job assignments. These mechanisms promote equity by redirecting platform profits to improve working conditions. Similarly, Amsterdam implemented short-term rental registration, an annual cap of 30 rental nights per property, and mandated tourism tax collection directly through platforms to manage tourism impacts and protect residential housing availability (City of Amsterdam, n.d.). Barcelona adopted similar redistribution-oriented tools, including a comprehensive licensing system, property-use restrictions in saturated neighborhoods, and integration of

short-term rental monitoring into its digital governance dashboard (European Commission, 2021). These measures acknowledge that platforms' wealth and data advantages require corrective regulation.

Redistributive justice frameworks help ensure that gains from the SE are not concentrated among platform owners but shared more fairly with laborers, tenants, and cities. Policies such as registration, licensing, taxation, and algorithmic disclosure operationalize fairness by offsetting platform power and mitigating asymmetries. These tools enhance platform accountability, labor dignity, and housing access.

Self-regulation and co-regulation

Self-regulation allows platforms to create their own standards and enforcement mechanisms, often supplemented by peer reviews or ratings. Cannon and Summers (2014) note that self-regulation enables platforms to be agile and responsive, but its effectiveness is limited by profit motives and conflicts of interest. Batjer (2015) and Cohen and Sundararajan (2015) propose to let the markets self-regulate as they do so better and faster than governments. Their view is that markets are self-regulating due to competition and the use of peer reviews, which allow customers to voice their opinions on every transaction. Combined efforts of sharing economy companies can form industry associations that can act faster and more flexibly than governments. Critics, however, argue that self-regulation is not sufficient and that review systems are prone to discrimination and are outside of any regulatory control. To address this, co-regulation, where governmental oversight supplements voluntary compliance, has gained traction in recent literature. Co-regulatory tools, such as three-party agreements between cities, platforms, and worker cooperatives, aim to bridge this gap. Wu and Lin (2023) propose a co-regulatory model where governments establish minimum standards, such as safety benchmarks or worker rights, while platforms retain flexibility to design operational processes that meet or exceed those standards. This approach allows for sector-specific innovation while preserving essential public protections.

Amsterdam's collaboration with Airbnb reflects a co-regulatory approach, where the platform shares anonymized data with municipal authorities to support enforcement of night caps, registration requirements, and zoning restrictions. (City of Amsterdam, n.d.). In 2021, the San Francisco County Transportation Authority passed rules requiring Uber and Lyft to disclose trip-level data and emissions metrics to help shape urban planning and congestion policies (San Francisco County Transportation Authority, 2023). Additionally, South Korea has implemented co-regulatory mechanisms between municipal authorities and ride-hailing platforms to oversee service standards and data-sharing requirements. In 2022, the government officially allowed ridesharing services under a new regulatory structure that includes collaboration between platform firms and public agencies to ensure compliance with safety, pricing, and operational guidelines (Mobility Innovators, 2022). These examples demonstrate how shared governance can fill gaps left by formal legal systems while enhancing platform accountability and public policy alignment.

Game-theoretic interaction

Game-theoretic perspectives view regulation as a strategic interaction between platforms and regulators, where both anticipate and respond to each other's actions. Veretennikova and Selezneva (2023) offer a model showing how policymakers can optimize regulation by aligning platform incentives with public goods such as traffic efficiency, emissions reduction, or tax compliance. Rather than relying on rigid rules, regulators can use payoff matrices and conditional policies, such as staged licensing or reward-based compliance, to encourage desirable platform behavior. These mechanisms help maintain flexibility, reduce enforcement costs, and encourage proactive cooperation from SE firms.

Examples include China's ride-hailing market, where regulators, platforms, and drivers engage in strategic interactions shaped by conditional licensing, penalties, and data-sharing requirements. Evolutionary game-theoretic models show that firms internalize regulatory expectations, such as compliance with fare policies

and safety standards, to avoid enforcement actions and sustain market access (Liu et al., 2021). Gauß et al. (2024) analyze how day caps in Germany's rental markets function as adaptive regulatory tools that reshape platform and host behavior. While the study does not formally apply game theory, its findings highlight how targeted constraints can lead stakeholders to strategically adjust their offerings, an outcome consistent with game-theoretic interpretations of regulatory design in the sharing economy.

Moreover, London's phased integration of e-scooters required operators to meet progressive performance benchmarks on rider safety and emissions data before expanding fleet sizes (UK Department for Transport, 2021). Hence, game-theoretic models are appropriate for showing how to set up staged permitting, compliance scores, and signaling mechanisms that affect long-term regulatory stability. This approach lets policymakers design adaptive policies that evolve based on iterative feedback loops. Game-theoretic ideas can be used to design processes like conditional licensing or tiered penalty systems.

Experimental governance

Experimental governance supports iterative, context-specific regulation through pilot programs and sandboxing mechanisms. This approach suggests that governments should create experimental regulations until new methods can be tested and their efficiency can be evaluated before adopting these regulations permanently. This strategy would "embrace innovation while balancing its risks and opportunities" (Rochardas, 2016). Governments can quickly adapt and take an iterative experimental approach that focuses on customer safety, while new regulations can be aligned on a state and local level (Davidson and Infranca, 2015). Hong and Lee (2018) highlight how decentralized urban governance, such as in U.S. cities, has enabled municipal experimentation in SE regulation, allowing councils to test policies locally before scaling them. This type of adaptive, context-sensitive regulation helps regulators learn which models effectively balance innovation with public safety, reducing systemic risk while preserving flexibility.

This approach is particularly effective in fragmented regulatory landscapes, as it allows for tailored solutions that can later be harmonized across jurisdictions. Examples include Helsinki's experimentation with data-sharing models and New York City's pilot programs on curbside management for shared scooters. These efforts reflect a bottom-up ethos of policymaking, which prioritizes empirical learning and stakeholder engagement over rigid mandates.

Furthermore, experimental governance fosters collaborative innovation by inviting public, private, and civil society actors into the regulatory process. Its flexible structure is ideally suited for industries like SE, where technological evolution and consumer behavior shift rapidly. The iterative feedback built into pilot programs ensures continuous improvement and responsiveness to emerging risks and opportunities.

These five perspectives combine to offer a layered and complete set of tools that can be adapted to address the various challenges of the sharing economy. Their integration allows for tailored responses to specific regulatory contexts, reaching a balance between control and innovation. In the next section, how these perspectives can be synthesized into a coherent framework and operationalized through phased implementation strategies is discussed.

Table 2. Regulatory Perspectives

Perspective	Definition	Key Focus	Mechanisms	Pros/Cons	Authors
Legal Formalism	Traditional rules	Liability, tax	Licensing, inspections	Clear but rigid	Posen (2015), Nieuwland & Van Melik (2020)
Redistributive Justice	Fair outcomes	Labor equity	Platform taxes, benefits	Promotes equity, may deter investment	Frenken & Schor (2019), Gerstein & Gong (2022)
Co/Self-Regulation	Shared oversight	Flexibility	Data-sharing, sandboxes	Fast and adaptive, may lack accountability	Wu & Lin (2023), City of Amsterdam (n.d.)
Game-Theoretic	Strategic incentives	Mutual enforcement	Staged licensing, penalties	Balances power dynamics	Veretennikova & Selezneva (2023), Liu et al. (2021)
Experimental Governance	Iterative design	Innovation	Testbeds, pilots	Encourages learning, can delay rule clarity	Hong & Lee (2018), Davidson & Infranca (2015)

Theoretical framework: toward a stratified hybrid regulation model

This paper builds on the growing recognition that no single regulatory approach can adequately address the diverse challenges posed by the sharing economy. Existing theories, including regulatory pluralism, legal formalism, and responsive regulation, offer valuable insights but fall short of capturing the full complexity of platform-based innovation, stakeholder asymmetries, and fragmented legal environments. Therefore, this paper proposes a stratified hybrid model that aligns each governance approach with a class of regulatory challenges identified in Section 3 and embeds them as interdependent layers rather than isolated alternatives. Table 3 provides an overview of the proposed hybrid regulatory layers, highlighting the associated implementation mechanisms and policy tools that correspond to each governance perspective.

Layer 1: Legal formalism for baseline protections

This foundational layer addresses immediate concerns regarding safety, taxation, and liability. Traditional rules, such as safety inspections, tax declarations, zoning, and insurance, are vital where consumer risk or public goods are at stake. This layer sets the baseline obligations all SE firms must meet, particularly for cross-jurisdictional or high-risk sectors.

Layer 2: Redistributive justice for social equity

The second layer addresses the fairness of economic outcomes. Regulatory instruments such as platform taxes, portable benefits, and local revenue redistribution (e.g., tourism taxes, housing fees) serve to offset power imbalances and ensure that laborers, renters, and municipalities receive a fair share of platform-generated value. This layer targets long-term inequalities that legal formalism alone cannot address.

Layer 3: Co-/self-regulation for sector-specific flexibility

Platforms and governments share regulatory responsibility in this layer. Co-regulatory agreements and sandbox pilots allow dynamic responses to industry-specific problems like price volatility or service quality. Trust scores, reputation systems, and algorithmic disclosures support real-time compliance. Examples include Amsterdam's Airbnb data-sharing agreement. This layer reinforces public trust without sacrificing platform agility.

Layer 4: Game-theoretic enforcement for strategic compliance
This layer focuses on incentives and strategic compliance. Mechanisms such as staged licensing, compliance scoring, and conditional access to market expansion use regulator-platform interaction to foster adaptive behavior. China's ride-hailing permit system exemplifies this, encouraging proactive compliance through clear thresholds and escalatory penalties.

Layer 5: Experimental governance for policy learning
The outermost layer provides a feedback loop for innovation. Cities deploy pilot programs, digital governance labs, or temporary licensing to test novel regulatory approaches. These enable iterative improvements and foster resilience in the face of new platform models, particularly AI, blockchain, and IoT that are beginning to affect SE dynamics. This layer keeps the system adaptive.

This layered approach aligns tools with risks and maturity levels. High-risk issues (e.g., worker safety, taxation) are anchored in formalism; emerging or uncertain areas (e.g., AI-based ride matching or dynamic pricing) are managed through experimentation. By stratifying regulation, the model enables a balance between standardization, flexibility, and fairness.

Unlike fragmented or one-size-fits-all frameworks, this model allows governments to stack approaches strategically. The coexistence of enforcement, cooperation, incentives, and feedback loops increases resilience across jurisdictions. It also offers a structure for empirical testing, comparative analysis, and cross-city learning, setting the stage for future research and policy development.

Table 3. Hybrid Framework Mapping

Class	Perspective	Regulatory Layer	Applied Tools
Negative Externalities & Protection	Legal Formalism	Layer 1	Safety, insurance rules
Unfair Competition & Innovation Hurdles	Redistributive Justice, Co-Regulation	Layers 2–3	Tax policies, trust scores
Fragmented Landscapes	Game-Theoretic, Experimental	Layers 4–5	Staged licensing, policy sandboxes

Implementation and testing roadmap

To operationalize the hybrid framework, implementation should begin with the formal adoption of basic legal standards such as safety requirements, tax registration, and insurance mandates for platform operators. These rules provide essential protection for users and set a minimum compliance bar for all participants.

Cities like New York and Paris already apply zoning and safety codes to Airbnb listings, which can serve as a template for similar baseline requirements elsewhere.

Next, redistributive mechanisms can be introduced to ensure economic fairness. For example, municipalities might implement targeted platform taxes, such as San Francisco's surcharge on ride-hailing trips or Barcelona's tourist charge on short-term rentals, with revenues allocated to worker benefits, local infrastructure, or housing programs. These policies help offset the burden SE platforms place on local communities and labor markets.

To build adaptive governance capacity, governments can establish joint task forces or co-regulatory forums. In mobility sectors, this might involve transit agencies and platforms collaborating on real-time data sharing, as seen in Amsterdam. Such forums can support flexible rulemaking and test pilot programs in a low-risk environment. For strategic compliance, cities can adopt performance-based licensing systems where platforms gain expanded access or operational privileges by meeting transparent metrics on safety, emissions, or labor fairness. China's dynamic permit allocation for ride-hailing services offers a working example.

Finally, experimentation should be encouraged through temporary regulatory sandboxes. These allow cities to test novel rules—such as new wage floors, algorithm transparency rules, or data-sharing standards—before making them permanent. London and Helsinki have used this approach in urban mobility trials. Researchers can support this process by conducting comparative evaluations across cities using different combinations of regulatory layers, capturing trade-offs in innovation, trust, and enforcement. For empirical validation, researchers could compare jurisdictions with different combinations of layers (e.g., a city using only Layers 1–2 vs. one deploying the full stack). Evaluation metrics could include consumer trust, labor conditions, pricing transparency, and innovation outcomes. A multi-city longitudinal study using mixed methods would provide rich insight into the layered model's performance.

Limitations

This paper presents a conceptual framework and does not offer empirical data or statistical testing. The model remains theoretical and may not be generalized across different regulatory systems or cultural contexts. Some jurisdictions may lack the institutional capacity for layered implementation. Political resistance from platform firms or legacy industries could hinder adoption. Furthermore, the model assumes rational behavior from all actors. More data is needed to assess scalability and to determine how the interaction between regulatory layers evolves. Moreover, as regulatory environments evolve rapidly, frameworks proposed now may require future recalibration. Another limitation is the lack of engagement with platform-specific internal data. The implementation of game-theoretic or experimental governance strategies is contingent on access to proprietary datasets, which were unavailable for this study. Future research should consider partnerships with platforms to test model predictions and validate design logic.

Conclusion

The recent growth in the sharing economy is facing regulatory challenges between government agencies, sharing economy companies, and market participants. Based on the current literature, this article suggests that the sharing economy encounters six major issues: consumer and supplier protection, negative externalities, unfair competition, hurdle innovation, differing regulatory landscapes, and slow regulatory

responses. To address these, five major regulatory perspectives have emerged: legal formalism, redistributive justice, co-/self-regulation, game-theoretic governance, and experimental policymaking.

This paper shows that none of these proposed solutions are viable on their own and instead require an integrated "Layered Hybrid Regulation Approach" that encompasses the benefits of all five. The new theory bridges the gaps between the peculiarities of these alternative regulatory approaches and the issues faced by the sharing economy. These challenges currently overshadow the opportunities SE offers. With this hybrid model, this paper attempts to support the progress of the sharing economy by leveraging those opportunities while mitigating risk.

Through this layered regulatory lens, the research contributes to the theoretical understanding of SE regulation and offers a roadmap for practical experimentation and testing. An all-embracing concept of sharing economy governance becomes possible through this integrated framework, supporting innovation without sacrificing responsibility. This study advances regulatory theory in the context of the sharing economy by offering a stratified hybrid model that integrates multiple governance perspectives. Through a robust literature review, it identifies critical regulatory challenges and presents a model that links theoretical principles to practical tools. The proposed roadmap translates these ideas into actionable guidance, while the limitations section identifies necessary conditions for empirical validation. With further refinement, this model can inform policy across diverse domains, balancing opportunity and responsibility in the digital age.

Acknowledgements

The author acknowledges the contribution of interactive, LLM-enhanced search engines in supporting idea generation, exploratory synthesis, and language refinement during the development of this manuscript.

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