

Towards a Typology of Innovation Regimes: Horizontal, Vertical, Schumpeterian, and Al-Shāfi'ī's Epistemic: Beyond the Dominant Paradigm of Islamic Finance

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Abstract

This article offers a critical reinterpretation of contemporary innovation theories, breaking with unidimensional approaches centered on Schumpeterian creative destruction. It develops an original analytical typology based on four innovation regimes: horizontal, vertical, Schumpeterian, and epistemic, drawing on the epistemology of al-Shāfi'ī. Horizontal innovation relies on a logic of diffusion of uses and stabilization of digital ecosystems, characterized by structured incrementalism and strong integration of user interfaces. Vertical innovation refers to a logic of sovereignty and power, where technology becomes a geostrategic decision-making infrastructure closely linked to state apparatuses and security concerns. Schumpeterian innovation corresponds to a disruptive dynamic based on creative destruction, but its contemporary limitations stem from the production of systemic instabilities. Finally, epistemic innovation is mobilized through al-Shāfi'ī's contribution as a normative architecture for validating knowledge, based on methodological coherence and the regulation of conditions for truth production. This dimension introduces an analytical opposition between the ontology of conflict associated with Peter Thiel and Alex Karp, where innovation is conceived as asymmetric competition and the production of technological monopolies, and an ontology of epistemic stability centered on the validation, coherence, and pacification of knowledge. The article thus shows that innovation is not a homogeneous process, but a field structured by competing regimes of rationality. This typology allows for a reconfiguration of the measurement and governance of innovation, particularly in Muslim-majority economies, by integrating institutional, geostrategic, and epistemic criteria, beyond the dominant paradigm of Islamic finance, where innovation is conflated with market validation in global finance.

Keywords: al-Shāfi'ī Epistemology, Epistemic Innovation, Governance of Innovation, Innovation Regimes, Sovereignty and Technology.

1. Introduction

Since the seminal work of Joseph Schumpeter (1934), extended and formalized by the paradigm of endogenous growth (Aghion & Howitt, 1992), innovation has been understood as a process of creative destruction, an intrinsic driver of capitalist dynamics. From this perspective, which today constitutes the cornerstone of economic orthodoxy, innovation acts as a force of productive imbalance. It presides over a permanent reconfiguration of structures through the obsolescence of the past, positing that the incessant replacement of obsolete technologies is the sine qua non of prosperity.

However, the contemporary transformation of advanced digital economies seems to be such that this linear and purely mechanistic interpretation is undermined by it. A bifurcation in technological trajectories that defies flow-based growth models is now being witnessed. On



the one hand, there is so-called horizontal innovation, of which Apple Inc. is the archetype. Far from the Schumpeterian rupture, it focuses on the incremental optimization of uses, the capture of ecosystems, and a homeostatic stabilization of mass markets (Srnicek, 2016). On the other hand, there is so-called vertical innovation, driven by players such as Palantir, which is embedded at the heart of sovereign security and sovereignty infrastructures, transforming technology into an instrument of state power (Bratton, 2016).

This dualization is linked to what theoretical literature now identifies as the Strauss moment. Driven by Peter Thiel and Alex Karp's vision and informed by the philosophy of Leo Strauss (Strauss, 1952) this concept signals the exhaustion of liberal narratives based on technological neutrality, giving way to the re-emergence of power dynamics and conflict (Karp & Zamiska, 2025; Thiel, 2007). While this moment marks a break by reintroducing politics into the heart of technology, it remains trapped in an instrumental purpose where innovation serves exclusively the pursuit of domination.

However, the impasse between the perpetual motion of Aghion and Howitt (2009), and Mokyr (2018), and the will to power of Strauss calls for a major heuristic shift. This article proposes to introduce an epistemic dimension of innovation inspired by the thought of Imam al-Shāfi'i. Where the Straussian approach sees structure as a weapon of sovereignty, al-Shāfi'i thought of innovation through the crystallization of the *Uṣūl* (epistemological foundations) as the creation of a matrix of coherence.

The shift from the political to the epistemic reconfigures the very object of innovation: beyond mere technological disruption or ecosystemic hegemony, the focus shifts to the establishment of validity protocols that transform information into knowledge. In this perspective, al-Shāfi'i's work cannot be reduced to a jurisprudential technique; it constitutes a veritable architecture of the intellect. This architecture does not simply structure the conditions for knowledge production in unstable environments; it also establishes a link between seemingly incommensurable domains, reintegrating them into a methodological continuity governed by coherence of meaning and the unity of principles of justification.

2. Literature Review

2.1. The Schumpeterian Legacy: Between Rupture and Contemporary Aporias

Schumpeter's theory remains the prevailing paradigm in the economic analysis of innovation. By placing the innovative entrepreneur at the center of the dynamics of capitalism, Schumpeter defines innovation as a force of creative disequilibrium (Schumpeter, 1942). This process, while a driver of growth, relies on a view of technology as a catalyst for radical change. However, this analytical framework now struggles to grasp the complexity of multifaceted digital platforms and the emergence of hybrid systems where the state and technology intertwine, making the distinction between disruption and rent-seeking increasingly blurred.

2.1.1. Platform Capitalism and Stabilization Strategies

Contrary to the imperative of radical disruption, recent work on the digital economy highlights a trend toward the crystallization of ecosystems (Langlois, 2003; Zuboff, 2019). Here, innovation no longer aims so much to destroy the established order as to ensure user retention and predictable behavior. It becomes horizontal and incremental, focusing on optimizing interfaces and capturing data within closed environments. Innovation then serves as a lock-in mechanism rather than a driver of competitive renewal.

2.1.2. Innovation and Sovereignty: Technology as a Sovereign Architecture

Transcending their purely commercial function, cutting-edge infrastructures are becoming instruments of biopolitics and control (Foucault, 1997). The rise of technological giants like Palantir illustrates the growing hybridization between platform capitalism and sovereign imperatives (Pasquale, 2016). By evolving toward a form of vertical integration, innovation is impacting the fields of defense and intelligence (Amoore, 2013; Kitchin, 2014): sovereign power now rests on the mastery of technical protocols and the ability to model precise targeting scenarios (DeNardis, 2015).

2.1.3. The “Straussian Moment”: The Radical Politicization of Technology

This shift toward power-driven innovation finds theoretical resonance in what some analysts call the “Straussian moment,” referring to the influence of Leo Strauss on Silicon Valley figures like Thiel (2007). This paradigm marks the end of the illusion of neutral and liberating technology. Innovation is reinterpreted here as a tool for civilizational survival and political conflict. It rejects the optimism of global progress in favor of a Hobbesian worldview, where technology is the weapon of those who can decipher the hidden structures of power.

2.1.4. The Aporias of the New Neo-Schumpeterian Paradigm: Critique of the “Aghion Moment”

The model developed by Aghion and Howitt (1992) promotes an approach to endogenous growth based on innovation. It places the process of creative destruction at the heart of economic dynamics, whereby innovations gradually replace existing technologies. In this framework, growth results from investments in research and development and from competition among innovative firms. Technological progress is thus modeled as a cumulative and self-sustaining process, dependent on economic and institutional incentives.

The first limitation stems from what can be described as epistemic agnosticism. Aghion’s model views innovation as a flow variable, essentially measured by the rate of technological replacement, without questioning the intrinsic nature of knowledge. It therefore fails to conceive of innovation as a coherent architecture, where the central issue lies in structuring the conditions of validity, hierarchy, and circulation of knowledge.

A second limitation concerns the blind spot of stabilization. The neo-Schumpeterian paradigm rests on the idea that growth depends on continuous competition, which implies the displacement of incumbent players. This assumption leads it to underestimate a dynamic that is nevertheless central to contemporary digital economies: horizontal innovation. In platform ecosystems, innovation no longer primarily aims at destruction or replacement, but at stabilizing uses, consolidating technical environments, and progressively locking in systems.

A third limitation relates to the unexamined assumption of power. This literature maintains a conception of innovation as a global public good, relatively politically neutral. It thus remains largely insensitive to the logics of sovereignty, geostrategic conflict, and geopolitical reconfiguration highlighted by the “Strauss moment”. By reducing technology to a mere lever of economic performance, it obscures its dimension as a vector of power and an instrument for transforming power relations on a global scale.

2.1.5. The Epistemic Horizons: al-Shāfi ʿī’s Contribution to Innovation Theory

Where Schumpeter prioritizes rupture and the dynamics of creative destruction, and where Strauss emphasizes the logics of power, sovereignty, and hermeneutical tension, the Islamic scientific tradition opens a path still largely unexplored in contemporary literature on innovation: that of an epistemic structuring of knowledge. From this perspective, novelty is not conceived as a radical break, but as a process of gradual integration within a normative

and coherent architecture, articulating the *aḥkām* (legal rulings), *qawā'id* (legal maxims), and *maqāṣid* (higher objectives) of the *Sharī'a* (Belabes, 2025b). The production of knowledge relies on internal validation mechanisms, in which rationality cannot be dissociated from the methodological frameworks that govern the formulation, hierarchization, and legitimation of new knowledge.

In this respect, Al-Shāfi'ī's contribution extends beyond the strict framework of law to encompass the theory of knowledge. In his commentary *al-Majmū' Sharh al-Muhadhab*, Imam al-Nawawī emphasizes the innovative aspect of his work: "*He is credited with innovative and unprecedented work*" (Al-Nawāwī, 1929).

Moreover, in *Tahdhīb al-Asmā' wa al-Lughāt*, he defines innovation as creating something unprecedented, never before achieved (Al-Nawāwī, 2005). Innovation is understood as the production of something entirely new, that is, something that did not exist before and had never been done before. It is worth emphasizing that in classical Arab-Islamic literature, innovation is not conceived as a mere imitation of what is dominant in other cultures, in contrast to certain contemporary orientations of the Islamic financial industry, in which innovation sometimes seems to be reduced to a transposition of dominant exogenous models.

The Shāfi'ī innovation, particularly through his seminal work *al-Risālah* (Al-Shāfi'ī, 2018), lies fundamentally in the invention of a meta-methodology. By systematizing the rules of deduction (*qiyās*) and hierarchizing the sources of knowledge, al-Shāfi'ī established an architecture that allows for the stable and rigorous production of new meaning. This construction itself rests on a philological reading guided by meaning (*ma'na*) (Al-Jurjānī, 1991), capable of connecting what appears a priori separate, even irreconcilable, by reintegrating textual and normative fragments into a unified interpretive coherence.

It is worth noting that while al-Nawawī considered al-Shāfi'ī to have innovated in the science of the foundations of jurisprudence, Al-Shāṭibī (1997) considered himself the founder of the science of *Maqāṣid al-Sharī'a*. He writes in *al-Muwafaqqāt*: "*the founder of the science of the purposes of law (maqāṣid al-sharī'a)*. He writes: "*If you encounter an attitude of rejection and disbelief regarding this book, and if you do not clearly grasp how it constitutes invention and innovation, this may mislead you into believing that it is something that has never been heard of, nor a work composed in the fundamental or derivative religious sciences according to a similar model or comparable structure.*" "*When faced with evil, simply listen to it, and when faced with any innovation in religion, consider it a blameworthy invention, so do not let yourself be deterred by an apparent difficulty without examination, and do not reject what may contain benefit without having considered its value*".

This underscores that, in the Islamic tradition, innovation is not condemned per se, but rather evaluated according to its nature, its purpose, and its conformity to normative principles. Novelty, therefore, does not constitute an autonomous or intrinsic value. Its legitimacy depends instead on its capacity to serve recognized purposes and to remain consistent with the ethical and legal framework of Islam. From this perspective, the essential question is not the emergence of a new element in itself, but its contribution to the achievement of higher objectives, to the preservation of moral and social order, and to its integration into the foundations of tradition. Far from opposing creativity or intellectual renewal, the Islamic tradition thus seeks to distinguish innovation as a constructive developmental process from innovation understood as a break with fundamental normative principles.

For innovation theory, this suggests a third model: innovation as an architecture of coherence, capable of integrating change without sacrificing the integrity of the system, and whose internal logic, by its very nature, escapes processes of ideological co-optation. This irreducibility stems from the fact that innovation, within this framework, is not defined by its social or political uses, but by the formal conditions that enable the emergence, validation, and hierarchization of meaning (Belabes, 2025a).

In other words, it is not content available for external appropriation, but a structuring mechanism that organizes upstream the very criteria of validity according to which a statement can be judged acceptable, coherent, or transmissible. In this sense, it cannot simply be captured or redirected by an ideological logic, because any attempt at instrumentalization already presupposes the implicit acceptance of rules of coherence that are not external to it, but constitutive of it.

This approach thus shifts the question of innovation from the realm of use to that of internal normativity: it is no longer the application that determines the value of the system, but the system's capacity to produce stable frameworks for understanding the change itself. Consequently, epistemic innovation appears as a form of meta-regulation, in which transformation is legitimate only if it remains intelligible within a pre-existing order of justification. It is precisely this primacy of validation conditions over uses that gives this model its structural resistance to ideological recuperations: any attempt at misappropriation implies a break in coherence, which, in this context, immediately translates into a loss of epistemic legitimacy.

2.2. Theoretical Framework: Typology of the Four Innovation Regimes

The proposed model breaks with a unitary conception of innovation, reconfiguring it as a structured articulation of four distinct regimes, each corresponding to a specific institutional, cognitive, and geostrategic logic. Innovation is no longer considered a homogeneous phenomenon, but rather a differentiated system of competing and complementary rationalities.

2.2.1. Horizontal Innovation (Flow and Usage Logic)

Apple Inc. exemplifies a regime characterized by massive diffusion and the progressive sedimentation of uses within integrated digital ecosystems. Innovation here mainly takes the form of organized incrementalism (Nelson & Winter, 1985), aiming less at disruption than at stabilizing user behaviors and continuously optimizing interfaces. Its central objective lies in consolidating closed and coherent technological environments, thereby promoting continuity of practices and user loyalty. However, in its contemporary version, this system tends to generate strong path dependency, which can reduce the diversity of technological trajectories in favor of ergonomic efficiency and ease of use alone.

2.2.2. Vertical Innovation (Logic of Power and Sovereignty)

Palantir exemplifies a regime based on deep integration into decision-making and sovereign infrastructures, where innovation becomes an instrument of coordination between technologies and state apparatuses. It no longer aims solely at economic performance, but at the reconfiguration of power structures and geostrategic decision-making capacities.

In this configuration, innovation is inextricably linked to issues of security, sovereignty, and information control (Mazzucato, 2015). However, it is frequently embedded in logics of secrecy and opacity in decision-making, which limits the possibility of external control and public validation of technological processes (Farrell & Newman, 2019).

For Peter Thiel and Alex Karp, founders of Palantir, the liberal paradigm inherited from Locke (1988) based on pacification through exchange belongs to a historical parenthesis. The contemporary world is closer to the conflictual matrix described by Schmitt (2007), where the friend/enemy distinction once again becomes structuring. From this perspective, reading Leo Strauss radicalizes the issue: politics cannot be neutralized, because it always involves existential decisions concerning the survival of the community.

Therefore, when adversaries share neither norms nor constraints, legal symmetry becomes a disadvantage. Procedural democracy with its requirements of transparency, deliberation, and reversibility appears vulnerable to actors operating in opacity and perpetuated conflict. In this context, the republican logic of preservation prevails: the security of the body politic conditions the very possibility of democracy. Technological innovation then becomes an infrastructure of power, oriented toward geostrategic superiority rather than mere prosperity. However, this position contains a major internal tension. By absolutizing the friend/enemy logic, it tends to produce what it only claims to describe: a world of generalized conflict. In other words, it risks functioning as a self-fulfilling prophecy, where the generalization of mistrust in turn justifies permanent exceptional measures.

Furthermore, prioritizing security over procedure opens the door to an indeterminacy of limits: at what point does suspension become the norm? And who decides that the threat justifies the exception? Without mechanisms of reversibility, the republican logic of preservation can drift towards self-subversion, where the body politic preserves itself at the cost of what constituted its legitimacy. Finally, by reducing politics to antagonism, this approach tends to underestimate other forms of power including institutional, normative, economic which still fall precisely within the Lockean legacy. Yet, even in a conflictual environment, these dimensions continue to structure the international order in a lasting way.

Thus, the geostrategic realism inherent in this vision gains in clarity regarding power dynamics, but at the cost of a risk: that of transforming the need for self-defense into a permanent organizing principle, to the point of making a return to a truly political order in the strong sense impossible, that is, one capable of articulating power and legitimacy.

2.2.3. Schumpeterian/neo-Schumpeterian Innovation (Disruptive Logic)

The theoretical model developed by Philippe Aghion, Joel Mokyr, and Peter Howitt corresponds to the classic dynamic of creative destruction, in which innovation proceeds through disruption, replacement, and obsolescence of existing structures. It constitutes a fundamental driver of growth by introducing permanent productive imbalances (Aghion et al., 2014). However, in its contemporary form, this system reveals a structural limitation: it tends to produce chronic instability by accelerating replacement cycles without providing a stabilizing normative or methodological framework. It thus exposes the system to a form of technological headlong rush, potentially disconnected from any robust ethical or institutional regulation.

2.2.4. Epistemic Innovation (Logic of Structure and Method)

Al-Shāfiī represents a system that differs fundamentally from previous ones in that it focuses neither on the production of objects nor on the accumulation of power, but on the structuring of the conditions for the production and validation of knowledge. It is based on a logic of codification of interpretative, legal, and cognitive protocols, ensuring the coherence and transmissibility of knowledge over time. Its central objective is the production of stable normative coherence, based on explicit rules of interpretation and justification. In this sense, it introduces a metatheoretical dimension of innovation: it defines the matrix of legitimacy within which other forms of innovation can be evaluated, integrated, or regulated.

Unlike the other three regimes, epistemic innovation is not limited to producing sectoral innovations or generating localized transformations within a specific technical or economic domain. It operates at a more fundamental level, structuring the general frameworks from which these innovations can be understood, interpreted, and evaluated. In this sense, it does not simply add new solutions to an existing system, but acts on the very conditions that make their intelligibility possible. It thus enables the coherent connection of heterogeneous phenomena, often dispersed or fragmented. It also plays a role in systemic integration, ensuring compatibility between seemingly disjointed levels of innovation. Consequently, it appears as a meta-innovation, conditioning the legibility and stabilization of all the other regimes.

From this perspective, the Shāfi'ī approach constitutes a foundational corrective to the dominant contemporary regimes. It substitutes a logic of normative stabilization for the logic of creative destruction, juxtaposes the innovation of power with an epistemology of method and transparency of rules, and finally reconfigures the dynamics of digital rent by reintroducing a structuring interpretative praxis at the heart of the technological system.

2.3. Theoretical Propositions

2.3.1. P1 (Structural Duality of Innovation)

The architecture of contemporary innovation can be understood as a structuring tension between two complementary logics: a dynamic of horizontal expansion oriented toward the mass diffusion and capillary action of uses, and a vertical dynamic centered on the consolidation of technological sovereignty and the control of critical infrastructures. This proposition does not claim to be empirically verified as such, but constitutes a framework for interpreting contemporary transformations.

2.3.2. P2 (Transformation of the Schumpeterian Schema)

The notion of creative destruction must be broadened beyond the competitive market to include institutional, state, and sovereign infrastructures, which become central sites of rupture and recomposition of contemporary capitalism.

2.3.3. P3 (Geopolitical Repoliticization of Technology)

Discourses of technological neutrality tend to be reconfigured by a logic of geopolitical competition, in which technology becomes an instrument of power, informational asymmetry, and geostrategic differentiation between blocs.

2.3.4. P4 (Stabilization of digital ecosystems)

Mature digital ecosystems appear to be evolving from a regime of permanent disruption to a regime of progressive stabilization, characterized by the securing of uses, the reduction of uncertainty, and the production of ecosystem rents.

2.3.5. P5 (Epistemic primacy of innovation)

Contemporary forms of innovation are conditioned by epistemic infrastructures (protocols, standards, validation systems), which play a structuring role in the hierarchization and legitimization of other forms of innovation.

2.3.6. P6 (Hybridization of Contemporary Capitalism)

Contemporary capitalism can be described as a hybrid regime in which three logics increasingly interact: market, state sovereignty, and knowledge production, forming a tripolar accumulation structure in constant recomposition.

3. Methods

The selection of cases is based on a principle of theoretical relevance rather than statistical representativeness. It aims to create a contrasting set of analytical configurations that shed light on the different innovation regimes identified within the conceptual framework, namely horizontal stabilization, vertical innovation linked to sovereignty, and Schumpeterian disruptive dynamics. These cases are not used as empirical evidence for hypotheses, but as ideal types for analytical purposes, intended to structure the comparison and to make intelligible the differentiated logics of innovation regimes.

3.1. Case Selection: Theoretical and Comparative Sampling

The selection of cases is based on a principle of theoretical relevance rather than statistical representativeness. The objective is to create a contrasting set of configurations to illustrate different innovation regimes identified within the conceptual framework: horizontal stabilization, vertical innovation linked to sovereignty, and Schumpeterian disruptive dynamics. These cases are not considered empirical “proofs” of hypotheses, but rather ideal-typical analytical configurations that allow for structuring the comparison.

3.1.1. Stabilization Regime: Horizontal Innovation Through Ecosystem

The first case study concerns Apple Inc., analyzed here as an exemplary configuration of an ecosystem-based stabilization regime, characterized by a primarily horizontal innovation logic. From this perspective, the challenge is not radical technological disruption, but the progressive consolidation of an integrated environment, structured around governance rules, technical standards, and mechanisms for controlling usage. The analysis focuses more particularly on three complementary dimensions:

- A. The evolution of App Store governance between 2015 and 2025 allows us to observe how the rules of access, distribution and monetization of applications contribute to the structuring of a closed but highly organized ecosystem.
- B. The role of APIs is examined as a central mechanism of “controlled openness”, insofar as they enable interconnection and external innovation while maintaining a high degree of internal regulation.
- C. The study of incremental innovation dynamics highlights a logic of continuous improvement of services and functionalities, rather than a disruptive transformation of technological architectures.

In this configuration, innovation can thus be interpreted as a process of progressive accumulation, functional integration, and optimization of uses, embedded within a generally stable technical architecture. It is less a matter of disruptive change than of a dynamic of consolidation and densification of an already mature digital ecosystem.

3.1.2. Sovereignty Regime: Vertical and Geostrategic Innovation

The second case study concerns Palantir Technologies, examined here as a representative example of a vertically structured innovation regime in which technological development is closely linked to the logics of sovereignty, security, and state action. Unlike market-driven or commercial ecosystem-based dynamics, this type of innovation is characterized by strong integration with public infrastructure and institutional power structures. The analysis focuses on three main dimensions:

- A. The examination of nature of public and defense contracts, which constitute an essential vector for financing and guiding the company’s technological developments.

- B. The gradual integration of her systems into intelligence, security, and sensitive data management systems, where technology is no longer limited to a commercial tool but becomes an operational instrument at the service of public action.
- C. The analysis of forms of technological co-production between the company and state agencies, in which technical solutions are developed jointly with security and defense institutions.

From this perspective, Palantir illustrates an innovation regime where technology is not merely a market product, but becomes a geostrategic infrastructure for decision-making, coordination, and control. It thus participates in a dynamic of vertical innovation, where economic and technological logics are deeply intertwined with the imperatives of sovereignty. This type of configuration is linked to what some theoretical works refer to as a “*Straussian moment*”, understood as a geopolitical reconfiguration of the role of technology in contemporary power relations.

3.1.3. Disruptive Regime: Schumpeterian Dynamics of Deep Tech

The third case study focuses on a group of so-called “deep tech” startups, primarily funded by venture capital and active in scientifically and technologically intensive fields such as artificial intelligence, biotechnology, and quantum computing. These companies are used here as a framework for examining contemporary innovation dynamics as they approach situations of potential technological disruption (Apodaca et al., 2023).

The analysis is part of a Schumpeterian and neo-Schumpeterian perspective which allows us to understand these dynamics as spaces where creative destruction can emerge, that is to say processes by which new innovations are likely to profoundly transform, or even replace, existing technological and industrial structures. Attention is focused on three main dimensions:

- A. The technological trajectories of companies are studied in order to understand how their innovations evolve over time and fit into logics of continuity or disruption.
- B. Patent production is analyzed as an indicator to understand the nature and intensity of innovations developed.
- C. Funding models, particularly the role of venture capital, are examined as structuring elements of innovation dynamics and technological risk-taking.

Rather than presupposing the automatic existence of a break, this approach aims to identify the conditions under which dynamics of technological discontinuity can actually emerge within contemporary innovation systems.

3.1.4. Comparative Logic and the Construction of Innovation Regimes

The articulation of the three preceding innovation regimes is not intended to establish empirical validation in the strict sense of the proposed theoretical model. Rather, it stems from a comparative approach to constructing ideal types of innovation regimes, allowing for a structuring of the analysis of contemporary transformations without presupposing a direct correspondence between the cases studied and verifiable general laws.

From this perspective, each case (Apple, Palantir, deep tech) is considered a distinct analytical configuration, that is, a stylized form that highlights specific logics of innovation organization. The value of this approach therefore lies not in the search for proof, but in its ability to reveal differentiated regularities, structural tensions, and contrasting trajectories. The comparative framework thus allows us to address three complementary analytical objectives:

- A. It enables the identification of structural contrasts between innovation regimes, particularly between ecosystem stabilization logics, dynamics of sovereign

verticalization, and potential processes of technological disruption. These contrasts allow for a better understanding that contemporary innovation does not follow a single trajectory, but unfolds according to multiple and sometimes heterogeneous configurations.

- B. This comparison allows us to analyze the distinct institutional and technological logics that underpin each regime. In particular, it highlights the respective roles of platform architectures, state infrastructures, and funding mechanisms in shaping innovation trajectories. Innovation thus emerges as a phenomenon deeply embedded in specific institutional frameworks, rather than a purely technical or autonomous process.
- C. This comparative approach highlights the plurality of contemporary innovation trajectories, emphasizing that current technological dynamics cannot be reduced to a single development model. On the contrary, they unfold according to multiple logics, ranging from incremental consolidation to potential disruption, including hybrid forms of integration between the market, the state, and the production of technological knowledge.

Thus, the proposed comparative framework allows us less to conclude on the veracity of a model than to intelligibly structure the diversity of contemporary forms of innovation, by articulating empirical description, theoretical construction and interpretative reading.

3.2. Analysis of Innovation Trajectories: Descriptive Indicators and Interpretative Framework

The analysis of innovation dynamics relies on the use of two complementary tools, designed not as instruments for verifying or validating hypotheses, but as devices for structured observation and comparative interpretation (Abbott, 2001; Latour, 2005). Their function is to make technological and institutional trajectories intelligible by combining qualitative and quantitative dimensions, without assuming a strict causal relationship between the variables studied (Bryman, 2006; Creswell & Creswell, 2014).

From this perspective, these tools should be understood as analytical indicators, enabling the description of trends, the identification of recurring patterns, and the support of comparative analysis of innovation regimes (Edquist, 1997). They thus fall within a systemic approach to innovation, where phenomena are understood as institutional and organizational systems rather than as linear cause-and-effect relationships (Fagerberg et al., 2006; Lundvall, 1992; North, 1990).

3.2.1. Patent Mapping and Semantic Distance Measurement

The first tool consists of an analysis of patent trajectories based on measuring the semantic distance between successive innovations. This approach makes it possible to track the evolution of technological productions over time, by observing the degree of continuity or discontinuity between different patent applications.

Semantic distance is used here as an analytical indicator of technological transformation, without assuming that it mechanically reflects the value or real impact of innovation. Rather, it constitutes a way of making the structure of technological developments visible through their conceptual proximities or divergences (Kaplan & Vakili, 2015; Uzzi et al., 2013). In this context:

- A. A high semantic distance is interpreted as a possible indicator of rupture, suggesting the introduction of new technological configurations or significant recompositions of existing paradigms (Dosi, 1982; Mokyr, 1990).

- B. A low semantic distance is associated with dynamics of continuity, progressive improvement and incremental accumulation within the same technological space (Nelson & Winter, 1985).

This approach is in line with Schumpeterian and neo-Schumpeterian work (Aghion & Howitt, 1992; Schumpeter, 1934), while here it is used in a strictly descriptive and exploratory way, as a tool for reading innovation trajectories rather than as a measure of causality.

3.2.2. Index of Institutional Integration and Logics of Sovereignty

The second tool is an institutional integration index, designed to assess the degree to which companies are embedded in state, administrative, and sovereign structures. This index is based on several empirical dimensions, including the share of revenue coming from public, military or defense contracts, the level of operational interdependence with public institutions (security agencies, administrations, state bodies), and the intensity of forms of technological collaboration with public actors.

The objective is not to construct an explanatory variable in the strict sense, but to propose an indicator of institutional positioning, allowing companies to be situated on a continuum ranging from market autonomy to strong integration within sovereignty frameworks (Freeman, 1987; Granovetter, 1985; Lundvall, 1992). From this perspective, this index is interpreted as a measure of structural embeddedness in state systems, without presuming a mechanical link between institutional integration and technological orientation (Weiss, 2014).

3.2.3. General Interpretative Proposal

The entire analytical framework rests on a central interpretative proposition: that different degrees of institutional integration and technological discontinuity correspond to differentiated regimes of innovation, ranging from market disruption to ecosystemic stabilization, and including intermediate forms of innovation integrated with logics of sovereignty (Geels, 2002; Perez, 2008).

This proposition does not constitute a hypothesis in the strict sense of empirical testing, but a heuristic framework for comparative reading, intended to structure the interpretation of the results and to articulate the different configurations studied within a single framework of intelligibility (Flyvbjerg, 2001; Weber, 1949). In this vein, the analysis is complemented by attention to the discursive and normative dimensions of innovation, as well as the forms of governance that frame its dynamics (Foucault, 1971; Jasanoff, 2004).

3.3. Discourse and Governance Analysis

Unlike forms of innovation directly observable through quantitative indicators (growth, adoption, valuation), the Straussian and epistemic dimensions of innovation which associated with al-Shāfi'i manifest themselves more discreetly. They are not immediately apparent in economic results, but are embedded in the protocols, methodological frameworks, and discursive regimes that structure technological action.

From this perspective, the analysis will favor a qualitative approach based on the examination of technical and geostrategic documents, particularly white papers, architectural specifications, and algorithmic governance documents. The objective is to identify indicators of what can be described as the methodological structuring of knowledge, in the sense of epistemic innovation. This will involve determining whether the organizations studied simply leverage existing data flows and infrastructures, or whether they develop new rules for validation, proof, and reliability, for example, through advanced protocols in artificial intelligence, cryptography, or formal verification.

3.4. Analysis of “Hybrid Ecosystems”

To validate the hypothesis of a triadic structure of innovation linking market, power, and knowledge, this article proposes an empirical examination of contemporary forms of cooperation between public and private actors in the field of technological defense. These hybrid configurations constitute a privileged field of observation insofar as they concentrate, within the same institutional framework, logics that are traditionally distinct.

More specifically, the analysis will focus on public-private partnerships in defense, using the Defense Innovation Unit as an emblematic case study. This structure was created to accelerate the integration of technologies from the commercial sector into military operational capabilities. This type of organization lies at the intersection of three innovation regimes: a market logic geared toward profitability and economic performance, a logic of sovereignty centered on national security and geostrategic superiority, and an epistemic logic linked to the validation, reliability, and robustness of the knowledge mobilized.

The objective, therefore, is to observe whether and under what conditions these structures manage to articulate these three dimensions without one neutralizing the others. In other words, it is a matter of assessing the capacity of these mechanisms to produce a form of innovation that is simultaneously profitable, geostrategically effective, and epistemologically rigorous.

4. Results and Discussion

4.1. Towards a Multidimensional Ontology of Innovation

In this section, it is important to distinguish three levels of analysis: (i) a descriptive level, which aims to account for the observable dynamics of contemporary innovation; (ii) an interpretative level, which proposes conceptual frameworks for structuring these dynamics; and (iii) a normative level, which outlines certain implications or possible directions. This distinction aims to avoid any confusion between the analysis of processes and their prescriptive evaluation.

4.1.1. Observed Dynamics of Innovation (Descriptive Level)

One of the major results concerns the shift in the dominant innovation regime. While the Schumpeterian dynamic which extended in particular by Philippe Aghion, Joel Mokyr, and Peter Howitt is based on a logic of rupture and permanent renewal, empirical data suggest an evolution towards forms of cumulative and stabilizing innovation. In mature ecosystems such as Apple Inc., innovation no longer primarily aims to replace existing technologies, but rather to progressively integrate them into increasingly dense and interconnected architectures. This shift from an economy of destruction to an economy of sedimentation confirms the emergence of a horizontal regime, based on capturing usage and stabilizing rents: in other words, a strategy consisting of permanently anchoring user behavior within a closed ecosystem in order to ensure recurring revenue, regardless of major technological disruptions.

4.2. Reconfiguration of Technological Architectures (Descriptive Level)

The analysis highlights the structuring role of the “Straussian moment” as a mechanism for transforming the innovation regime. In line with the reflections associated with Peter Thiel and inspired by Leo Strauss, this moment corresponds to a profound reconfiguration of the status of technology. Innovation is ceasing to be a mere driver of consumption and becoming an instrument of sovereignty and geostrategic power. In organizations such as Palantir, technology is presented less as a product and more as a decision-making infrastructure, integrated into state apparatuses. This transformation is accompanied by an increased

emphasis on secrecy, organizational hierarchy, and integration into sovereign structures, redefining the figure of the innovator as a geopolitical actor.

4.3. Al-Shafi'i's Contribution: Towards an Epistemological Theory of Innovation (Interpretative-Conceptual Level)

Introducing the perspective of Imam Al-Shafi'i allows for a decisive heuristic shift in the analysis of contemporary regimes of innovation. Faced with the structuring tension between a dynamic of rupture inherited from Joseph Schumpeter and extended by Philippe Aghion, Joel Mokyr, and Peter Howitt and a logic of power and sovereignty associated with the "Strauss moment" and extended by Peter Thiel and Alex Karp, epistemic innovation appears as a principle of reflexive stabilization and institutionalization of knowledge.

From this perspective, innovation as formulated in the approach of Aulet (2013) as an idea that has found a market constitutes only a partial reduction of a more fundamental phenomenon. It presupposes a world pacified by exchange and structured by the competitive adjustment of preferences, thus implicitly extending a Lockean reading of the social order (Belabes, 2022).

However, this hypothesis becomes fragile when one adopts a Schmittian reading of politics, as formulated by Carl Schmitt. In a world structured by the friend/enemy distinction, innovation ceases to be a simple economic optimization and becomes a geostrategic instrument of power, embedded in relationships of asymmetrical conflict. It then becomes a matter of survival and structural superiority rather than market adaptation.

It is within this framework that reading Leo Strauss introduces an additional level of analysis. Strauss highlights the fact that all political organization rests on fundamental choices concerning truth, justice, and legitimacy, choices that cannot be reduced to purely economic or technical logics. Innovation, therefore, cannot be understood without examining the implicit regimes of truth that condition its possibility. It is always underpinned by a normative architecture of knowledge.

In this context, contemporary infrastructures like Palantir empirically illustrate this convergence of the three levels. They are not limited to responding to a market logic (Aulet), nor to supporting a power logic (Schmitt), but rather organize systems for the production, aggregation, and interpretation of decision-making knowledge. Innovation thus becomes a technology for structuring reality, where knowledge directly conditions the capacity for geostrategic action.

From this perspective, innovation cannot be reduced to either the transformation of markets or the consolidation of power structures. It resides more fundamentally in the structuring of the conditions for the validity, transmission, and reproduction of knowledge. Protocols whether legal, algorithmic, or organizational should therefore not be interpreted as exogenous constraints limiting innovation, but as genuine cognitive infrastructures, conditioning the very possibility of coherent and cumulative change.

Beyond its procedural rigor, al-Shāfi'i's contribution is distinguished by a fundamentally pluralistic orientation. Contrary to contemporary innovation logics, often marked by a desire for hegemony or technological supremacy, his approach does not aim to impose a single model. Rather, it tends toward establishing rules that allow for the orderly coexistence of diverse practices. In this sense, the method does not serve to standardize systems, but to make their multiplicity intelligible and epistemologically articulable within a common framework.

Al-Shāfi'i's approach thus introduces a third analytical dimension, irreducible to purely economic or political logics: that of epistemology as the foundation of innovation. By placing the question of the validation of knowledge at the heart of the debate, it replaces logics of rupture or domination with a mechanism for ordering knowledge. Innovation then becomes

the vehicle for a coherent architecture, capable of reconciling the stability of methodological principles with the pluralism of contexts.

It thus achieves a structuring convergence with the contemporary intuitions of Rawls (1971) and Habermas (1984): the possibility of an order not imposed, but made stable by the very conditions of dialogue and public justification. From a complementary perspective, the thought of Latour (2018) allows us to further broaden this framework through the notion of a parliament of things. Epistemic innovation then no longer concerns only the human conditions of dialogue, but the entire range of hybrid mediations through which knowledge is constructed and objectified.

From this broader perspective, innovation can no longer be reduced to a simple mechanism of cognitive or normative adjustment; it unfolds as a veritable socio-technical architecture of reality, within which the conditions for validating knowledge emerge from the interplay between human actors, technical devices, and non-human entities (Descola, 2015). In such a configuration, singular phenomena such as Zamzam water, associated with the intervention of the angel Gabriel (Al-Bukhari, 2002), are no longer simply empirical data, but are inscribed within specific regimes of meaning, where symbolic efficacy, spiritual normativity, and cosmological intelligibility are combined.

Innovation thus appears as a point of convergence between several theoretical frameworks: the procedural normativity of Rawls and Habermas's models, the structured plurality of interpretative traditions championed by Al-Shāfi'i, and the sociology of hybrid mediations developed by Latour. It no longer designates simply a process of optimization or rupture, but a space for the recomposition of the very conditions of reality, where the epistemic, normative, and ontological dimensions of knowledge production are simultaneously articulated.

4.4. Theoretical Reading of Transformations (Interpretive Level)

The results of this research converge on the hypothesis of a transformation of the contemporary economic system into a hybrid and triadic regime, structurally articulating three distinct but interdependent logics: a market logic oriented towards the creation and capture of value, a sovereignty logic centered on security and the exercise of power, and an epistemic logic based on the production, structuring, and validation of knowledge.

In this context, organizational performance can no longer be assessed solely by its capacity to innovate in the classic Schumpeterian sense. It now depends on its ability to coordinate and articulate these three registers simultaneously without exclusively favoring any one of them. Innovation is no longer simply a driver of economic growth, but becomes a mediating and integrating mechanism between heterogeneous rationales, ensuring the functional coherence of increasingly complex systems.

This reconfiguration consequently calls for a profound revision of traditional innovation indicators, historically centered on market logic, inter-firm competitiveness, and rankings between national economies. Metrics such as the number of patents, R&D expenditure, or productivity gains, while useful, now appear insufficient to capture the complexity of contemporary systems. They tend to privilege the quantitative and competitive dimension of innovation, neglecting its qualitative, institutional, and epistemic dimensions.

Within a triadic framework, it becomes necessary to integrate new evaluation criteria, focusing in particular on the robustness of knowledge architectures, the transparency of validation protocols, the capacity of systems to integrate the pluralism of contexts, and their contribution to the common good. Such a redefinition of indicators would allow us to move beyond a strictly competitive conception of innovation and place it within a broader perspective, where performance is no longer measured solely in terms of growth or

dominance, but also in terms of the coherence, legitimacy, and sustainability of the systems produced.

4.5. Discussion of Theoretical Proposals

This section does not aim to establish empirical validation, in the strict sense, of the theoretical propositions formulated previously (P1 to P6). Since the approach adopted is primarily conceptual and interpretive, the focus is not on the falsifiable verification of the statements, but rather on their internal coherence, their explanatory power, and their capacity to illuminate contemporary transformations in innovation and digital capitalism.

Within this framework, the theoretical propositions developed appear as convergent frameworks for understanding, allowing for the structuring of the interpretation of the dynamics studied according to several complementary levels.

4.5.1. Coherence of Structural Duality (P1)

The proposition of a duality between horizontal expansion and vertical integration proves useful for interpreting the current tensions in digital architectures. In particular, it allows us to understand the coexistence between the logic of mass deployment of uses and the logic of securing geostrategic infrastructures, without presuming a strict or exclusive opposition.

4.5.2. Extension of the Schumpeterian Schema (P2)

Extending creative destruction to institutional and sovereign levels provides a relevant interpretative framework for analyzing the contemporary reconfiguration of innovation spaces. It highlights a partial shift in the center of gravity of innovation, without claiming a complete replacement of the market as the primary space for disruption.

4.5.3. Geopolitical Reconfiguration of Technology (P3)

The proposal for a repoliticization of technology highlights the relative erosion of discourses of technological neutrality. It accounts for the rise of geostrategic competition and informational sovereignty, without assuming their homogeneity or systematic nature.

4.5.4. Stabilization of Digital Ecosystems (P4)

The idea of a gradual shift from disruption to stabilization provides a useful framework for interpreting the evolution of mature platforms. It highlights a general trend toward securing uses and consolidating dominant positions, while leaving open the possibility of occasional or sector-specific disruptions.

4.5.5. Primacy of Epistemic Infrastructures (P5)

The proposition concerning the primacy of epistemic infrastructures highlights the structuring role of validation, standardization, and knowledge production mechanisms in the organization of contemporary innovation. It allows for the integration of cognitive and normative dimensions into the analysis of technical systems.

4.5.6. Hybridization of Contemporary Capitalism (P6)

The thesis of a hybridization between market, sovereignty, and knowledge production provides a comprehensive framework for understanding the current transformations of capitalism. It does not describe a stable model, but rather a dynamic of ongoing recomposition of accumulation regimes. Overall, the theoretical propositions developed in this study do not stem from an empirical verification protocol, but rather from an applied conceptual construction approach. Their value lies less in their strict validity than in their capacity to

structure a complex field of ongoing transformations, by articulating economic, technological, and geopolitical levels.

4.6. Equations of Value: The Civilizational Horizon of Innovation Models

In a broader reading of contemporary innovation regimes, it is possible to formulate different equations of value, each corresponding to a distinct civilizational horizon, understood as a specific way of articulating knowledge, norm, and purpose. Innovation no longer appears as a unified concept, but as a plurality of regimes for the production of reality, structured by differentiated epistemic, economic, and political logics.

4.6.1. Normative Horizon: Innovation As Legitimate Knowledge

In this first configuration, associated with al- Shāfiʿī’s approach, innovation is neither reduced to rupture nor accumulation, but refers to the construction of a normative order of knowledge. It aims to stabilize the conditions of validity of interpretations, by articulating methodological rigor and the plurality of contexts, according to a logic that can be summarized by the following equation:

$$\text{Legitimate knowledge} = \text{normative principles} + \text{ethical regulation}$$

$$LK = f(NP, ER)$$

where *LK* designates Legitimate Knowledge, *NP* Normative Principles, and *ER* Ethical Regulation. Following the contemporary theories of John Rawls and Jürgen Habermas, this approach can be interpreted as a search for epistemic justice: a system in which the production of knowledge is framed by principles of justification, coherence, and rational dialogue. Innovation becomes a process of ordering reality according to shared criteria of validity, where the diversity of interpretations is made intelligible within a common framework.

4.6.2. Consumerist Horizon: Innovation As The Production Of Desire

In the model associated with Apple Inc., innovation follows a fundamentally different logic. It no longer aims at the normative stabilization of knowledge, but at the production of desire and engagement through user experience. The product thus becomes an interface between technology and subjectivity, and value is defined by the ability to convert innovation into massive appeal, according to the following equation:

$$MV = f(UX, D, PD)$$

where *MV* stands for Market Value, *UX* for User Experience, *D* for Design, and *PD* for Production of Desire. In this context, innovation is essentially aesthetic and affective: it organizes perceptions, structures uses, and shapes expectations. It seeks neither truth nor justice, but rather the intensification of experience and the sustained capture of attention in a globalized, competitive environment.

4.6.3. Geostrategic Horizon: Innovation As Hegemonic Power

In the case of Palantir, innovation falls under a third regime: that of data governance and geostrategic planning. Value here resides neither in conformity nor in desire, but in the ability to anticipate, structure, and guide action within unstable, opaque, and potentially conflictual environments. This regime can be formalized by the following equation:

$$GC = f(DM, A, DG)$$

where *GC* stands for Geostrategic Capability, *DM* for Decision-Making, *A* for Anticipation, and *DG* for Data Governance. From this perspective, innovation becomes a decision-making infrastructure, where knowledge is immediately converted into the capacity

for action. It aligns with a logic similar to Carl Schmitt's, for whom the friend/enemy distinction structures politics, and with a Straussian reading where regimes of knowledge are inseparable from regimes of power and fundamental choices regarding collective survival.

Thus, these three equations of value do not simply refer to differentiated economic or technological models, but rather allow us to uncover three distinct ontologies of innovation which are a normative and epistemic ontology (Al-Shāfi'i); an aesthetic and consumerist ontology (Apple Inc.); and geostrategic and security ontology (Palantir).

From this perspective, innovation can no longer be understood as a homogeneous or neutral phenomenon. On the contrary, it appears as a structured field of tensions, traversed by competing regimes of production, legitimation, and instrumentalization of reality, within which the boundaries of knowledge, value, and power are simultaneously redefined.

5. Conclusion

This article offered a reinterpretation of contemporary innovation dynamics based on a four-part typology distinguishing horizontal, vertical, Schumpeterian, and al-Shāfi'i's epistemic regimes. It demonstrated that classical theories centered on creative destruction are no longer sufficient to encompass the diversity of current configurations, characterized by the coexistence of logics of stabilization, sovereignty, disruption, and normative validation of knowledge, beyond the dominant paradigm of Islamic finance, which reduces innovation to its validation by the global financial market.

The comparative analysis of the cases studied highlights that contemporary innovation cannot be reduced to a single dynamic, but is organized around competing regimes that structure the relationships between technology, institutions, and knowledge production in different ways. The horizontal regime prioritizes the stabilization of uses and the integration of digital ecosystems; the vertical regime situates innovation within logics of sovereignty and geostrategic control; the Schumpeterian regime maintains a dynamic of disruption but at the cost of increasing instability; finally, al-Shāfi'i's epistemic regime introduces a normative dimension centered on the conditions of knowledge validity.

Within this framework, the comparison between Peter Thiel and Alex Karp, on the one hand, and al-Shāfi'i, on the other, appears crucial. The perspective associated with Thiel and Alex Karp rests on an ontology of conflict, where innovation is intrinsically linked to competition, domination, and the production of lasting geostrategic imbalances. Conversely, the approach attributed to al-Shāfi'i stems from an ontology of epistemic regulation, where knowledge is framed by principles of coherence, validation, and normative pacification.

This tension highlights two fundamental regimes of rationality that permeate contemporary innovation: a geostrategic rationality based on conflict and an epistemic rationality based on the stability of knowledge. Relating them allows us to move beyond a strictly techno-economic conception of innovation and to open up a new theoretical space for the governance of innovation in contemporary economies, particularly in predominantly Muslim contexts.

From this distinction between geostrategic rationality (conflict, competition, advantage) and epistemic rationality (stability, coherence, validation of knowledge), it is necessary to draw up recommendations for the governance of innovation adapted to societies with a Muslim majority, by articulating economic performance, normative legitimacy and institutional coherence. Muslim-majority economies can avoid the conflict between competitive and stability imperatives by developing hybrid frameworks where innovation is evaluated both on its geostrategic performance and its epistemic robustness, which implies

the creation of evaluation bodies combining economists, engineers, legal experts, and specialists in the ethics of technology, in order to guarantee a multifaceted perspective on technological projects. Geostrategic rationality also presupposes robust mechanisms for the certification, validation, and traceability of scientific and technological knowledge, and within this framework it is recommended to develop independent national scientific verification agencies, ethical and methodological validation standards, and open but governed data infrastructures, the objective being to stabilize knowledge production in order to avoid normative fragmentation and external epistemic dependence.

At the same time, the geostrategic logic of markets, technological sovereignty, and geopolitical competition must be framed by explicit principles of responsibility, inspired by existing ethical frameworks within local legal and philosophical traditions, which can be achieved through charters of responsible technological sovereignty, ethics committees applied to emerging technologies such as AI and biotechnologies, and systematic assessments of the social and cultural impacts of innovations. Rather than solely prioritizing disruption, Muslim-majority societies can encourage innovation pathways that combine institutional continuity with technological transformation, requiring increased support for incremental innovations with strong social impact, long-term industrial policies, and public-private partnerships geared towards building the resilience of socio-technical systems.

In these contexts, technological sovereignty should not be conceived solely in terms of geostrategic control, but also in terms of ethical and institutional embeddedness, implying the partial localization of critical value chains, the development of internal expertise in data governance, and the integration of local normative frameworks into technological architectures. A key recommendation, finally, is to explicitly recognize that innovation is not only economic but also epistemic, which could take the form of interdisciplinary centers on the epistemology of technology, university programs combining economics, ethics and studies, and evaluation tools integrating truth, utility and legitimacy.

From this perspective, the critique of a dominant paradigm of Islamic finance that reduces innovation to its validation by the global financial market leads to rethinking the governance of innovation not as an arbitration between competition and Shari'ah compliance, but as the organization of their interaction within a coherent institutional architecture, it being understood that any logic of imitating a model also implies keeping informed of its own evolutions, in a geostrategic perspective where the economic is increasingly merging with the political in a dynamic of competition and a race for supremacy, in order to produce an innovation that is both effective, legitimate and sustainable.

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