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Article

Testing the Infinity Economy: Empirical Evidence from AI-Driven Generative Systems, Digital Platforms, and Emerging Post-Scarcity Dynamics

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Abstract

The rapid development of artificial intelligence, digital infrastructures, and autonomous production systems has generated increasing debate about the future direction of economic organization. For centuries, economic thought has been primarily concerned with scarcity: how societies allocate limited resources among unlimited needs. However, recent technological transformations reveal the emergence of new economic dynamics based on scalability, information abundance, network effects, and continuous value generation. This article empirically investigates whether elements of the proposed Infinity Economy are already visible within contemporary economic systems. Through a comparative analysis of artificial intelligence applications, digital knowledge platforms, open-source ecosystems, decentralized infrastructures, and automated production environments, the study examines how new forms of value creation differ from traditional scarcity-based models. The findings suggest that current economies remain hybrid systems where scarcity and abundance coexist. Nevertheless, important transformations are occurring: knowledge assets are becoming increasingly scalable, AI systems are generating new forms of cognitive production, and decentralized networks are enabling alternative models of coordination and value exchange. The article contributes to economic transformation research by providing empirical evidence for understanding the emergence of generative economic systems while highlighting the governance, ethical, and ecological challenges associated with their expansion.

Keywords: infinity economy; artificial intelligence; post-scarcity economics; digital economy; generative systems; innovation; complexity economics; economic transformation

1. Introduction

Modern economic theory has historically been built around the central problem of scarcity. From classical political economy to contemporary market theories, economic systems have been designed around the allocation of limited resources, the organization of production, and the distribution of wealth. Adam Smith's analysis of markets, Ricardo's theory of resource allocation, and later neoclassical approaches all developed within a context where land, labor, capital, and energy were considered fundamentally constrained resources (Smith, 1776; Ricardo, 1817).

However, the economic landscape of the twenty-first century increasingly includes systems that operate according to different principles. Digital information, software, artificial intelligence models, and knowledge networks can be reproduced, improved, and distributed at scales that differ significantly from traditional physical goods. The economic value of these systems does not primarily emerge from scarcity but from connectivity, learning capacity, network effects, and the ability to generate new forms of knowledge and services (Benkler, 2006; Castells, 2010).

Artificial intelligence represents a particularly important transformation because it introduces systems capable of producing, organizing, and improving cognitive outputs. Recent advances in generative AI demonstrate that machines can participate in activities previously associated primarily with human intellectual labor, including writing, programming, design, analysis, and scientific

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discovery (Brynjolfsson, Li, & Raymond, 2023). These developments raise fundamental questions about whether economic theory requires new concepts to explain value creation in environments where intelligence itself becomes increasingly scalable.

The concept of the Infinity Economy addresses this emerging transformation by proposing that some future economic systems may increasingly rely on generative capacities rather than only on resource allocation. The framework does not suggest that material scarcity has disappeared; energy, minerals, ecological systems, and physical infrastructure remain limited. Instead, it argues that certain dimensions of economic value—particularly informational, cognitive, and relational value—are becoming increasingly abundant and scalable.

While theoretical discussions about post-scarcity economies have expanded, empirical research examining whether these dynamics are already visible remains limited. This article therefore moves beyond speculative futures by investigating contemporary cases where characteristics associated with the Infinity Economy may already be emerging.

The central research question guiding this study is: To what extent do contemporary AI-driven and digital economic systems demonstrate characteristics of an emerging Infinity Economy?

By examining real-world examples across artificial intelligence, digital platforms, open-source ecosystems, decentralized infrastructures, and automated production, this article seeks to provide empirical grounding for the Infinity Economy framework.

2. Methodology

This study adopts a qualitative comparative research approach based on empirical case analysis. The objective is not to claim that the global economy has entered a fully post-scarcity phase, but rather to identify whether specific economic mechanisms associated with abundance, scalability, and generative value creation are already appearing within existing systems.

The methodology combines insights from evolutionary economics, complexity theory, innovation studies, and digital transformation research. Such an interdisciplinary approach is necessary because emerging economic systems cannot be adequately understood through traditional market analysis alone. Contemporary economies increasingly function as complex adaptive systems shaped by technological change, networks, institutional arrangements, and social interactions (Arthur, 2009; Barabási, 2016).

Cases were selected according to four analytical criteria. First, each case demonstrates the capacity to create value through scalable or non-rival resources, particularly information, knowledge, or digital capabilities. Second, each case involves AI, decentralized infrastructures, digital networks, or automated systems as important components of production or coordination. Third, each case illustrates forms of recursive improvement, where systems become more capable through accumulated data, learning, or collective participation. Fourth, each case provides observable evidence of transformation in how value is produced, distributed, or governed.

The empirical analysis focuses on five domains. The first examines generative artificial intelligence systems and their ability to expand cognitive production. The second analyzes digital knowledge economies where information can be reproduced and shared at minimal cost. The third explores open-source communities and collaborative production models. The fourth investigates decentralized infrastructures, including blockchain-based systems and distributed networks. The fifth examines automated manufacturing and intelligent production environments.

The research follows a comparative interpretive strategy. Rather than measuring economic performance through conventional indicators alone, it examines structural changes in the organization of value creation. The analytical focus is placed on four dimensions: scalability, generativity, decentralization, and cognitive value creation.

This approach aligns with complexity-based perspectives that understand economies as evolving systems rather than static mechanisms of equilibrium (Arthur, 2015; Kauffman, 1993). It also recognizes that technological abundance does not automatically produce social benefit; governance,

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ownership, and ethical frameworks remain essential determinants of economic outcomes (Ostrom, 1990; Crawford, 2021).

3. Literature Review: From Scarcity Economics to Generative Economic Systems

The emergence of the Infinity Economy can be situated within several existing intellectual traditions that have progressively challenged conventional scarcity-based economic assumptions.

The first tradition concerns the evolution from industrial economies toward knowledge and network economies. Drucker (1993) argued that knowledge had become a central productive resource in post-capitalist societies, while Castells (2010) demonstrated that digital networks were transforming economic organization by enabling new forms of communication, production, and coordination. Rifkin (2014) further suggested that digital technologies were creating environments where certain goods and services approach near-zero marginal costs.

The second tradition comes from complexity economics and evolutionary approaches. Unlike traditional economic models based primarily on equilibrium and scarcity, complexity economics views economies as adaptive systems characterized by emergence, innovation, feedback loops, and increasing returns (Arthur, 2009; Arthur, 2015). Network science further demonstrates that value creation in interconnected systems often follows nonlinear patterns, where connectivity and information flows become major sources of economic advantage (Barabási, 2016).

The third body of literature focuses on artificial intelligence and automation. Early analyses of digital transformation emphasized the capacity of information technologies to restructure productivity and labor markets (Brynjolfsson & McAfee, 2014; Ford, 2015). More recent research on generative AI indicates that artificial intelligence systems are beginning to influence knowledge production, professional activities, and organizational processes (Brynjolfsson, Li, & Raymond, 2023). These developments provide empirical foundations for examining whether cognitive production itself is becoming increasingly scalable.

The fourth tradition examines collaborative and decentralized forms of production. Benkler (2006) demonstrated how networked communities can create valuable resources through peer production, while Ostrom (1990) showed that collective governance mechanisms can successfully manage shared resources outside purely market or state systems. Blockchain technologies and decentralized platforms have further expanded debates about alternative models of coordination and ownership (Narayanan et al., 2016; De Filippi & Wright, 2018).

Finally, ecological and ethical scholarship provides an important counterbalance to technological optimism. Research on planetary boundaries demonstrates that abundance in digital and cognitive domains remains embedded within finite ecological systems (Rockström et al., 2009; Raworth, 2017). Therefore, the Infinity Economy must be understood not as unlimited material expansion but as a transformation in the sources, organization, and governance of value creation.

Together, these perspectives provide the theoretical foundation for examining whether contemporary economic systems are beginning to move from scarcity-centered mechanisms toward more generative and scalable forms of economic organization.

4. Empirical Cases and Findings: AI Generative Systems, Open-Source Economies, Digital Platforms, Decentralized Energy, and Automated Production

The empirical examination of emerging post-scarcity dynamics requires moving beyond theoretical speculation and analyzing concrete systems where new forms of value creation are already observable. The evidence does not indicate that contemporary economies have fully entered a post-scarcity condition. Material resources, energy constraints, geopolitical dependencies, and ecological limits remain fundamental realities. However, across several domains, economic activity is increasingly shaped by mechanisms that differ from traditional scarcity-based models. These mechanisms include exponential scalability, recursive improvement, decentralized coordination, and the creation of non-rival cognitive and informational assets.

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This section examines five empirical domains that illustrate these transformations: generative artificial intelligence, open-source economies, digital platforms, decentralized energy systems, and automated production environments.

4.1. Generative Artificial Intelligence and the Emergence of Cognitive Abundance

The rapid development of generative artificial intelligence represents one of the clearest examples of an economic system where value creation is increasingly separated from traditional limitations of human labor and physical production. Large language models, generative design systems, and AI-based analytical tools demonstrate the capacity to produce knowledge artifacts at unprecedented speed and scale (Feuerriegel et al., 2024 ; Sedkaoui, 2024).

Unlike traditional productive assets, AI systems improve through data accumulation, computational optimization, and iterative learning. Once developed, digital models can be replicated across millions of users with minimal additional production costs. This creates a form of cognitive scalability that challenges conventional assumptions about labor-based value creation.

Recent empirical research confirms that generative AI is already affecting workplace productivity and knowledge-intensive activities. Brynjolfsson, Li, and Raymond (2023), studying the introduction of generative AI assistance in customer support environments, found significant productivity improvements, particularly among less experienced workers. Their findings suggest that AI does not simply replace labor but can augment human capabilities by expanding access to knowledge and expertise.

However, the emergence of AI-driven abundance remains accompanied by important limitations. The production of AI systems depends on scarce resources, including advanced semiconductors, energy infrastructure, and highly specialized expertise. Furthermore, as Crawford (2021) argues, AI systems remain embedded within social, political, and material infrastructures that influence who benefits from technological progress.

Therefore, generative AI represents not the disappearance of scarcity but the emergence of a hybrid economic model where cognitive abundance develops within material constraints.

4.2. Open-Source Economies and Collaborative Value Creation

Open-source communities provide another important empirical example of Infinity Economy dynamics. Software projects such as Linux, Apache, and thousands of collaborative digital platforms demonstrate that valuable economic resources can emerge through decentralized contribution rather than traditional ownership models.

Benkler (2006) identified this phenomenon as peer production, where individuals and communities collectively create valuable resources through networked cooperation. Unlike conventional commodities, open-source software can be reproduced and distributed globally without depletion. Each additional user does not reduce the availability of the resource; instead, broader adoption often increases value through feedback, improvement, and ecosystem development.

The open-source model demonstrates three characteristics associated with the Infinity Economy. First, knowledge assets become non-rival resources that expand through use. Second, innovation becomes distributed across networks rather than concentrated within single organizations. Third, value creation becomes increasingly relational, emerging from collaboration, reputation, and community participation.

Nevertheless, open-source ecosystems also reveal governance challenges. Questions concerning funding, contributor recognition, institutional sustainability, and corporate appropriation remain unresolved. As Kelty (2008) and De Filippi and Wright (2018) demonstrate, digital commons require appropriate governance structures to prevent enclosure and maintain collective benefits.

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4.3. Digital Platforms and Network-Based Value Amplification

Digital platforms provide another empirical environment where scarcity-based economic assumptions are increasingly challenged. Platforms such as global search engines, social networks, digital marketplaces, and cloud infrastructures derive much of their value from network effects rather than from the direct consumption of scarce physical goods.

According to Castells (2010), network societies reorganize economic activity around information flows, connectivity, and distributed communication systems. In these environments, the value of a platform increases as participation expands, creating positive feedback loops between users, data generation, and service improvement.

This dynamic reflects an important principle of the Infinity Economy: value can become self-amplifying through network interaction. The marginal cost of adding digital users or distributing information products can approach zero, allowing rapid scaling.

However, digital platforms also demonstrate the risks of concentrated technological power. Zuboff (2019) argues that surveillance-based business models can transform digital abundance into new forms of economic control. Similarly, Morozov (2019) warns that digital infrastructures may reproduce inequalities through monopolistic ownership and algorithmic governance.

Therefore, digital platforms provide evidence of abundance dynamics while simultaneously highlighting the need for new governance frameworks.

4.4. Decentralized Energy and the Transition Toward Distributed Production

Energy systems represent a crucial test for the Infinity Economy because economic abundance ultimately depends on access to reliable energy. Traditional energy systems have historically been characterized by centralized production, geopolitical dependency, and resource constraints. However, renewable technologies and decentralized infrastructures are creating new possibilities for distributed energy generation.

Solar energy, battery technologies, smart grids, and community energy systems increasingly enable local production and consumption. Unlike fossil fuel systems based on extraction and depletion, renewable infrastructures operate according to principles of continuous regeneration, although they remain dependent on material resources and technological infrastructure.

Smil (2017) emphasizes that energy transitions are historically complex and require significant technological, economic, and institutional transformation. Similarly, decentralized energy systems require new governance models capable of coordinating production, storage, and distribution.

From the perspective of the Infinity Economy, decentralized energy represents an important transition because it shifts energy systems from centralized scarcity management toward distributed generative capacity.

4.5. Automated Production and Intelligent Manufacturing

The final empirical domain concerns automated manufacturing and intelligent production systems. Advances in robotics, additive manufacturing, digital twins, and AI-supported factories are transforming industrial production by enabling more flexible, localized, and adaptive manufacturing processes.

Anderson (2012) argued that digital fabrication technologies could democratize production by allowing smaller-scale actors to manufacture goods locally rather than depending exclusively on centralized industrial systems. More recently, Industry 4.0 research has demonstrated how interconnected machines, sensors, and AI optimization can create increasingly autonomous production environments.

These developments introduce elements of generativity because production systems can continuously adapt, optimize, and redesign processes based on real-time information. Instead of relying solely on fixed production models, intelligent manufacturing environments evolve through feedback and learning.

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However, automation also raises significant social questions concerning employment, inequality, and ownership. Acemoglu and Johnson (2023) emphasize that technological progress does not automatically generate shared prosperity; institutional choices determine whether innovation produces broad social benefits or reinforces concentration of power.

4.6. Summary of Empirical Findings

The empirical evidence suggests that the Infinity Economy is not yet a complete economic reality but an emerging configuration of economic processes within existing systems. Across artificial intelligence, open-source production, digital platforms, decentralized energy, and automated manufacturing, several common patterns appear: increasing scalability of information-based assets, greater reliance on networks and feedback loops, expansion of cognitive value creation, and movement toward decentralized coordination.

At the same time, these developments remain constrained by material scarcity, ecological limits, ownership concentration, and governance challenges. The empirical findings therefore support a transitional interpretation: contemporary economies are moving toward hybrid systems where scarcity-based mechanisms coexist with emerging abundance-based dynamics.

The next challenge is not only understanding these transformations but designing governance architectures capable of ensuring that generative capacities contribute to collective prosperity rather than creating new forms of inequality and dependency.

5. Discussion: From Emerging Post-Scarcity Dynamics to the Infinity Economy Framework

5.1. From Scarcity Economics to Generative Economic Systems

The empirical evidence examined in the previous section suggests that contemporary economies are not abandoning scarcity but are increasingly incorporating mechanisms that operate according to different principles. The transition currently underway is therefore not a simple replacement of scarcity by abundance; rather, it represents the emergence of hybrid economic systems where material constraints coexist with expanding informational, cognitive, and network-based forms of value creation.

Classical economic theory was constructed around the problem of scarcity. In the tradition of Adam Smith (1776), David Ricardo (1817), and later neoclassical economists, economic organization was fundamentally concerned with allocating limited resources among competing uses. Scarcity provided the foundation for concepts such as price formation, marginal utility, competition, and resource optimization. Even ecological economics, while challenging unlimited growth assumptions, retained scarcity as a central organizing principle by emphasizing biophysical limits and resource constraints (Georgescu-Roegen, 1971; Daly, 1996).

However, the rise of digital technologies introduces economic processes that cannot be fully explained through scarcity-based models. Information, software, algorithms, and knowledge networks behave differently from traditional commodities because they are often non-rival resources: their use by one actor does not necessarily reduce their availability to others. As Benkler (2006) demonstrated through the concept of peer production, digital environments enable collective value creation based on sharing, collaboration, and distributed participation.

The emergence of artificial intelligence intensifies this transformation. AI systems introduce a new category of productive capacity: machine-mediated cognitive generation. Unlike previous technologies that primarily amplified human physical capabilities, contemporary AI increasingly extends analytical, creative, and decision-making functions. This transformation challenges conventional assumptions about labor as the primary source of productive value (Brynjolfsson & McAfee, 2014; Brynjolfsson, Li, & Raymond, 2023).

From a complexity economics perspective, these developments represent a shift from economies organized primarily around allocation toward economies increasingly shaped by emergence and

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generativity. Arthur (2009, 2015) argues that economic systems evolve through technological combinations, feedback mechanisms, and increasing returns rather than through equilibrium alone. In such environments, value is not simply extracted from scarce resources but generated through interactions among networks, knowledge systems, and adaptive processes.

The concept of the Infinity Economy builds on this transformation by proposing that some dimensions of economic value can become increasingly expandable. This does not imply unlimited physical production or the disappearance of ecological constraints. Instead, it refers to the growing importance of economic resources whose value increases through replication, circulation, and recombination, particularly knowledge, intelligence, creativity, and relational networks.

Moleka (2025a-b) introduces this transformation through the perspective of quantum economics, arguing that digital and emerging technological systems require new ways of understanding value, exchange, and economic organization. Similarly, Moleka (2025c) develops the Infinity Economy framework as an attempt to conceptualize economic systems where generative capacities become central drivers of value creation.

Nevertheless, the transition toward generative economic systems requires caution. As Acemoglu and Johnson (2023) emphasize, technological progress does not automatically produce social prosperity. Economic outcomes depend on institutional arrangements, ownership structures, and political choices. Digital abundance can coexist with new forms of concentration, dependency, and inequality, particularly when technological infrastructures are controlled by a limited number of actors (Zuboff, 2019; Crawford, 2021).

Therefore, the empirical evidence supports a more nuanced interpretation: the Infinity Economy should not be understood as the elimination of scarcity but as the emergence of new economic logics where scarcity is no longer the sole organizing principle. The future of economic systems will likely depend on the ability of societies to combine generative technological capacities with ethical governance, ecological responsibility, and inclusive institutional design.

5.2. Quantum Economics and the Transformation of Value

The emergence of digital, artificial intelligence, and quantum-inspired technologies requires a reconsideration of how economic value is conceptualized. Traditional economic theories generally understand value through scarcity, utility, labor, exchange, or production costs. However, contemporary technological systems increasingly generate value through information flows, computational capacity, network interactions, and cognitive amplification. These transformations suggest that value is becoming less dependent on possession and increasingly connected to the capacity to generate, process, and transform knowledge.

The concept of quantum economics, as proposed by Moleka (2025a), explores this transition by arguing that digital economies require a new understanding of value dynamics where multiple states of possibility, information interactions, and emergent outcomes become central analytical categories. Although economic systems do not operate according to quantum physics directly, the metaphor highlights a shift from linear and static models toward dynamic, probabilistic, and relational approaches to value creation.

This perspective aligns with broader developments in complexity economics. Arthur (2009, 2015) demonstrated that economic systems evolve through technological combinations, feedback loops, and increasing returns. In digital environments, a single innovation can generate multiple derivative innovations, creating expanding ecosystems of value. Similarly, network science shows that value increasingly emerges from connections and interactions rather than isolated assets (Barabási, 2016).

The digital economy provides empirical evidence of this transformation. Software, algorithms, and knowledge products can be reproduced globally with minimal additional costs, allowing value to scale beyond traditional physical limitations (Rifkin, 2014). Artificial intelligence intensifies this dynamic by transforming data, knowledge, and human expertise into continuously improving productive systems. Generative AI models demonstrate how accumulated information can be

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transformed into new outputs, creating recursive cycles of innovation and productivity (Brynjolfsson, Li, & Raymond, 2023).

However, the transformation of value does not mean that all forms of scarcity disappear. Advanced computing requires energy, minerals, infrastructure, and specialized knowledge. As Crawford (2021) emphasizes, artificial intelligence remains embedded in material and political systems involving labor, resources, and institutional power. Therefore, the transformation of value must be understood as a redistribution of importance between material and informational dimensions rather than a complete transition away from physical constraints.

From this perspective, the Infinity Economy represents a broader evolution in economic thinking. Value increasingly emerges from generativity: the capacity of systems to continuously create new possibilities. Moleka (2025d) extends this argument by presenting the Infinity Economy as a civilizational framework where economic organization moves beyond the exclusive logic of accumulation toward regenerative capacities.

The challenge for economic theory is therefore to develop analytical tools capable of measuring not only production and consumption but also learning capacity, innovation potential, network resilience, and collective intelligence.

5.3. The Infinity Economy as a Hybrid Prosperity System

Empirical evidence suggests that the transition toward post-scarcity dynamics will not occur through the disappearance of existing economic structures. Instead, future economies are likely to become hybrid systems combining traditional markets, digital infrastructures, artificial intelligence, decentralized networks, and new forms of social value creation.

The concept of hybrid prosperity is particularly relevant for emerging economies. Many developing countries continue to face material scarcity, infrastructure limitations, and institutional challenges. Therefore, a transition toward post-scarcity systems cannot simply replicate the technological trajectories of highly industrialized economies. It requires models capable of combining technological leapfrogging, local knowledge, social innovation, and inclusive development.

Moleka (2025b) argues that post-scarcity development should not be measured exclusively through conventional economic indicators such as GDP growth. Instead, prosperity should incorporate broader dimensions, including innovation capacity, knowledge creation, technological sovereignty, social resilience, and ecological sustainability.

This approach connects with Amartya Sen's (2009) capability perspective, which defines development as the expansion of human capabilities rather than merely the accumulation of economic resources. Similarly, Raworth's (2017) doughnut economics framework emphasizes that future prosperity must operate within both social foundations and planetary boundaries.

The Infinity Economy therefore should not be interpreted as an unlimited growth model. A genuine abundance economy must distinguish between infinite scalability of knowledge and finite ecological realities. Digital abundance must remain compatible with planetary stewardship, circularity, and sustainable resource management (Rockström et al., 2009).

The hybrid prosperity model also has implications for innovation policy. Traditional innovation systems often prioritize technological competitiveness and economic growth. However, emerging systems require broader approaches integrating communities, ecosystems, artificial intelligence, and institutional transformation. This perspective resonates with Mode 4 knowledge production approaches, where innovation emerges through complex interactions among multiple actors and knowledge systems.

Thus, the Infinity Economy represents not a replacement of all existing economic institutions but a transformation of their foundations. The central question becomes how societies can organize technological abundance to improve collective well-being while preserving ecological integrity.

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5.4. AI, Quantum Abundance, and New Forms of Economic Coordination

Artificial intelligence represents a critical infrastructure of the emerging Infinity Economy because it changes the mechanisms through which economic coordination occurs. Historically, markets coordinated economic activity through prices, contracts, and competition. Increasingly, AI systems introduce new coordination mechanisms based on prediction, optimization, automation, and real-time adaptation.

AI-driven economic systems can process enormous volumes of information and identify patterns beyond human cognitive capacity. This creates possibilities for more adaptive supply chains, personalized production, intelligent energy management, and automated decision-support systems (Iansiti & Lakhani, 2020).

However, AI-based coordination also introduces significant governance challenges. The concentration of computational resources, data ownership, and algorithmic capabilities can create new forms of economic dependency. O'Neil (2016) demonstrates how algorithmic systems can reproduce inequality when they operate without transparency, accountability, or democratic oversight.

Therefore, the Infinity Economy requires a transition from algorithmic control toward algorithmic stewardship. AI infrastructures must be designed not only for efficiency but also for fairness, sustainability, and public benefit. UNESCO (2021) emphasizes that ethical AI governance requires transparency, human oversight, accountability, and respect for fundamental rights.

Decentralized technologies may contribute to this transformation by enabling alternative governance models. Blockchain-based systems, decentralized autonomous organizations, and digital commons demonstrate possibilities for distributed coordination, although their limitations and risks remain significant (Narayanan et al., 2016; De Filippi & Wright, 2018).

The future of economic coordination will likely involve combinations of AI intelligence, human judgment, institutional governance, and ecological awareness. The Infinity Economy therefore requires not simply more advanced technologies but more advanced governance systems.

5.5. From Economic Growth to Civilizational Regeneration

The deepest implication of the Infinity Economy concerns the transformation of economic purpose itself. Modern economic systems have historically prioritized growth, productivity, accumulation, and competition. While these mechanisms generated unprecedented technological progress, they also contributed to ecological pressures, social inequalities, and questions about human meaning in increasingly automated societies.

The Infinity Economy proposes a shift from economic expansion toward regenerative capacity. The central question is no longer only how much an economy produces, but whether it increases collective intelligence, ecological resilience, social flourishing, and long-term adaptability.

This perspective connects with broader debates on regenerative economics, Earth system governance, and sustainability transitions. Dryzek and Pickering (2019) argue that governance in the Anthropocene requires institutions capable of responding to complex planetary challenges. Haraway (2016) similarly emphasizes the importance of relational approaches that recognize interconnected human and non-human systems.

The transition beyond scarcity therefore requires cultural and institutional transformation. Economic systems must reconsider the relationship between humans, technology, and nature. Abundance without responsibility could intensify existing problems, while abundance guided by ethical principles could support new forms of collective flourishing.

The Infinity Economy should therefore be understood as a civilizational hypothesis: an invitation to rethink economic organization around intelligence, creativity, cooperation, and planetary responsibility.

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6. Challenges, Limitations, and Critical Perspectives

6.1. Material Constraints Behind Digital Abundance

Although digital technologies generate unprecedented forms of informational and cognitive abundance, they remain deeply embedded within material infrastructures. The apparent immateriality of artificial intelligence, cloud computing, digital platforms, and automated systems can obscure their dependence on physical resources, including energy, semiconductor manufacturing, rare minerals, data centers, and global supply chains.

Artificial intelligence models require substantial computational capacity, which involves significant energy consumption and material extraction. The expansion of digital infrastructures therefore does not eliminate scarcity; rather, it transforms the location and nature of scarcity. While information may become increasingly abundant, the physical foundations supporting information systems remain limited. This creates a paradox at the heart of the Infinity Economy: unlimited scalability of digital value exists within a finite planetary system.

The concept of post-scarcity must therefore be interpreted carefully. It does not imply the disappearance of all constraints but rather the emergence of economic domains where value creation is increasingly separated from traditional resource limitations. The challenge is to design technological systems capable of producing abundance without reproducing extractive patterns.

Research on planetary boundaries demonstrates that economic systems operate within ecological thresholds that cannot be ignored indefinitely (Rockström et al., 2009). Future Infinity Economy models must therefore integrate ecological accounting, circular production systems, renewable energy transitions, and responsible technological governance. Abundance without ecological responsibility would simply represent a new form of accelerated extraction.

6.2. Inequality, Ownership, and Concentration of AI Power

A fundamental limitation of the Infinity Economy concerns the distribution of ownership and control over generative infrastructures. Artificial intelligence, digital platforms, and advanced computational systems have the potential to democratize knowledge production, but they may also create new forms of concentration if controlled by a small number of corporations, governments, or technological elites.

The central question is not only whether AI can generate abundance, but who has access to this abundance and who controls the infrastructures that produce it. Data ownership, algorithmic capabilities, computational resources, and intellectual property rights are becoming major sources of economic power.

Acemoglu and Johnson (2023) argue that technological progress does not automatically translate into shared prosperity. Throughout history, technologies have produced different outcomes depending on institutional arrangements, political structures, and distribution mechanisms. Without inclusive governance, AI-driven economic systems may reinforce existing inequalities by concentrating wealth and decision-making power among those controlling technological infrastructures.

The Infinity Economy therefore requires new approaches to ownership, including open innovation ecosystems, cooperative platforms, public-interest AI infrastructures, and mechanisms ensuring broader participation in technological value creation. The challenge is to prevent digital abundance from becoming an instrument of exclusion.

6.3. Governance Risks in Autonomous Economic Systems

The emergence of autonomous economic systems introduces complex governance challenges. As artificial intelligence becomes increasingly involved in production, investment decisions, logistics, resource management, and organizational processes, societies must reconsider traditional models of accountability and regulation.

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Autonomous systems operate through algorithms that can produce outcomes difficult to predict or explain. This raises fundamental questions: Who is responsible when autonomous systems generate harmful consequences? How can societies ensure transparency in algorithmic decision-making? What mechanisms are necessary to maintain human oversight?

Floridi (2023) emphasizes that ethical AI governance requires principles of transparency, accountability, fairness, and human responsibility. However, the challenge becomes greater in the context of the Infinity Economy because economic systems themselves may become increasingly adaptive and self-organizing.

Future governance models must therefore move beyond traditional regulation toward forms of continuous stewardship. This requires institutions capable of monitoring algorithmic systems, evaluating social impacts, and ensuring alignment between technological development, human dignity, and ecological sustainability.

UNESCO (2021) similarly emphasizes that AI governance must protect fundamental rights while encouraging innovation. The Infinity Economy requires precisely this balance: enabling generative technological capacities while preventing uncontrolled algorithmic domination.

6.4. Measurement Challenges

One of the most significant limitations of the Infinity Economy framework concerns measurement. Existing economic indicators, particularly gross domestic product (GDP), were developed for industrial economies where value creation was primarily associated with physical production, consumption, and market transactions.

However, contemporary economies increasingly generate value through intangible assets such as knowledge, data, innovation networks, artificial intelligence capabilities, creativity, and collective intelligence. These forms of value are difficult to capture through traditional accounting systems.

A company developing an open-source AI system, for example, may create enormous social and technological value without generating equivalent market revenues. Similarly, educational networks, digital communities, and knowledge-sharing platforms contribute to economic transformation in ways that conventional indicators often underestimate.

Future research must therefore develop new measurement frameworks capable of evaluating generative capacities. These frameworks should consider cognitive capital, innovation ecosystems, AI-enhanced productivity, knowledge diffusion, ecological efficiency, resilience, and social contribution.

The development of an Infinity Economy Index could provide a multidimensional approach for assessing whether societies are increasing their capacity to generate, distribute, and sustain value beyond traditional economic output.

Such an approach connects with Sen's (2009) capability theory, which argues that development should be evaluated through expanded human freedoms and capabilities rather than income alone. It also aligns with Raworth's (2017) proposal that economic success must be measured within social and ecological boundaries.

6.5. Conceptual Limitations

The Infinity Economy remains an emerging theoretical framework and therefore requires further conceptual refinement and empirical validation. Although current technological developments demonstrate elements of post-scarcity dynamics, it remains uncertain whether these processes will develop into a coherent economic paradigm or remain limited to specific sectors.

Several theoretical questions require further investigation. First, the relationship between abundance and scarcity requires deeper analysis. Some forms of abundance may coexist with intensified scarcity elsewhere, particularly regarding energy, minerals, infrastructure, and political power.

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Second, the assumption that technological generativity automatically produces social benefits requires critical examination. Historical experiences demonstrate that innovation can generate both prosperity and disruption depending on institutional contexts.

Third, the concept of infinite economic value creation requires clarification to avoid confusion with unlimited material growth. The Infinity Economy should not be interpreted as an argument for unlimited consumption but rather as a framework for understanding expandable forms of knowledge, intelligence, creativity, and systemic capacity.

Future research must therefore examine where abundance dynamics succeed, where they encounter limitations, and under what conditions they contribute to inclusive and sustainable outcomes.

7. Future Research Directions: Building an Empirical Science of the Infinity Economy

7.1. Developing Infinity Economy Indicators and Measurement Frameworks

A central priority for future research is the development of empirical indicators capable of measuring the dynamics of generative economies. Traditional economic statistics remain valuable, but they cannot fully capture the transformation occurring in AI-driven and knowledge-intensive systems.

Future indicators should measure not only economic production but also the capacity of societies to generate intelligence, innovation, resilience, and adaptive capabilities. Potential dimensions include AI productivity enhancement, knowledge creation, open-source participation, innovation diffusion, technological sovereignty, ecological efficiency, and institutional learning capacity.

Sen (2009) demonstrated that development must be understood through human capabilities rather than economic output alone. Raworth (2017) similarly argued that prosperity must be evaluated within ecological and social boundaries. Building on these perspectives, Moleka (2025b) proposes hybrid prosperity systems capable of integrating technological advancement with human and ecological well-being.

An Infinity Economy Index could therefore become a tool for comparing how different societies develop generative capacities while maintaining sustainability and inclusion.

7.2. Comparative Empirical Studies Across Economic Contexts

Future research must investigate Infinity Economy dynamics across diverse geographical and institutional contexts. The emergence of generative economic systems should not be analyzed only through advanced technological economies because innovation pathways differ significantly according to social, cultural, and economic environments.

Comparative studies should examine how AI, decentralized infrastructures, and digital knowledge systems operate in developed economies, emerging markets, and local communities experimenting with alternative innovation models.

This is particularly important for developing countries, where technological transformation may follow different trajectories. Rather than replicating industrial models, emerging economies may combine digital technologies with local knowledge systems, decentralized infrastructures, and community-based innovation.

Moleka (2025b) emphasizes that post-scarcity development requires hybrid prosperity approaches adapted to different contexts. Similarly, Escobar (2018) argues for pluriversal development pathways recognizing multiple ways of organizing economic and social life.

Future research should therefore explore how Infinity Economy principles can support technological sovereignty, inclusive innovation, and locally controlled development.

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7.3. Governance Models for AI-Driven Generative Economies

As AI becomes increasingly central to economic coordination, governance research must examine new institutional models capable of managing autonomous and distributed systems.

Key questions include the ownership of AI-generated value, the distribution of benefits, the accountability of autonomous systems, and the prevention of excessive concentration of technological power.

Existing AI ethics research emphasizes transparency, fairness, accountability, and human oversight (Floridi, 2023; UNESCO, 2021). However, future research must develop governance architectures specifically designed for economies where production itself becomes increasingly automated and decentralized.

Potential research areas include algorithmic commons, cooperative AI systems, decentralized governance mechanisms, public-interest AI infrastructures, and participatory models of technological decision-making.

The objective is to ensure that generative infrastructures remain aligned with collective interests rather than becoming instruments of uncontrolled concentration.

7.4. Quantum Economics and Future Value Systems

The relationship between advanced computation and economic theory represents a major frontier for future research. Artificial intelligence, quantum computing, and complex adaptive systems challenge conventional assumptions about linear economic processes and predictable market behavior.

Moleka (2025a) introduces quantum economics as an attempt to rethink value creation, scarcity, and exchange within emerging technological environments. Future research should investigate whether concepts from information theory, complexity science, and advanced computation can contribute to new economic models.

Such research should avoid technological determinism. The objective is not to replace economics with technological metaphors but to develop analytical approaches capable of explaining nonlinear interactions, emergent value creation, and adaptive economic systems.

7.5. Post-Scarcity Development Pathways for Emerging Economies

Future research must examine how Infinity Economy dynamics can contribute to inclusive development, particularly in emerging economies. Technological abundance alone does not guarantee prosperity; outcomes depend on institutions, education, infrastructure, governance capacity, and social inclusion.

AI-enabled education, decentralized energy systems, digital entrepreneurship, and knowledge networks may create new opportunities for development. However, without appropriate strategies, these technologies may reinforce dependence on external platforms and infrastructures.

Research should therefore explore models based on technological sovereignty, local innovation ecosystems, community-owned digital infrastructures, and regional knowledge networks.

The central question is how emerging economies can transform technological abundance into locally controlled capabilities rather than new forms of dependency.

8. Conclusion: Toward an Empirical Science of the Infinity Economy

This article has examined whether contemporary economic systems already demonstrate characteristics associated with the emergence of an Infinity Economy. Through analysis of artificial intelligence systems, open-source ecosystems, digital platforms, decentralized energy infrastructures, and automated production environments, the study has shown that important transformations are occurring in how value is created, distributed, and organized.

The findings suggest that the global economy has not entered a complete post-scarcity condition. Physical resources, ecological constraints, technological inequalities, and institutional limitations

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remain fundamental realities. However, the evidence demonstrates that certain categories of value—particularly information, knowledge, cognitive capacity, and network-based innovation—are increasingly operating according to principles different from traditional scarcity economics.

The significance of the Infinity Economy therefore lies not in predicting the disappearance of scarcity but in identifying a transformation in the foundations of economic organization. Future economies may increasingly combine material constraints with generative capacities, creating hybrid systems where abundance and scarcity coexist.

This transformation requires a reconsideration of economic theory. Classical economics provided powerful tools for understanding allocation under conditions of limitation. However, emerging AI-driven systems require additional frameworks capable of explaining recursive innovation, autonomous production, network amplification, and cognitive value creation. Complexity economics, digital economy research, innovation studies, and AI governance scholarship provide important foundations for this intellectual transition (Arthur, 2009; Barabási, 2016; Floridi, 2023).

The Infinity Economy also requires a broader understanding of prosperity. Economic success cannot be defined exclusively through production growth or consumption expansion. Future systems must integrate human capabilities, ecological sustainability, technological responsibility, and collective intelligence. In this sense, the Infinity Economy connects with wider debates on sustainable development, regenerative economics, and alternative prosperity models (Raworth, 2017; Rockström et al., 2009; Sen, 2009).

Several challenges remain unresolved. Questions of ownership, power concentration, algorithmic governance, ecological impact, and unequal access to technological infrastructures require further investigation. Artificial intelligence may generate unprecedented abundance, but without appropriate institutions, it may also intensify existing forms of inequality and dependency (Acemoglu & Johnson, 2023; Crawford, 2021).

Future research must therefore avoid both technological pessimism and technological utopianism. The objective is not to assume that innovation automatically produces progress, but to understand how societies can govern emerging capabilities responsibly.

The Infinity Economy should ultimately be viewed as an invitation to develop a new empirical science of economic transformation. It proposes that the future of economics will depend increasingly on understanding not only how societies allocate scarce resources, but also how they cultivate intelligence, creativity, resilience, and regenerative capacities.

The transition beyond scarcity is therefore not merely an economic transformation. It represents a broader civilizational challenge involving technology, governance, ecology, and human purpose.

References

1. Acemoglu, D., & Johnson, S. (2023). *Power and Progress: Our Thousand-Year Struggle Over Technology and Prosperity*. New York: PublicAffairs.
2. Anderson, C. (2012). *Makers: The New Industrial Revolution*. New York: Crown Business.
3. Arthur, W. B. (2009). *The Nature of Technology: What It Is and How It Evolves*. New York: Free Press.
4. Arthur, W. B. (2015). *Complexity and the Economy*. Oxford: Oxford University Press.
5. Barabási, A.-L. (2016). *Network Science*. Cambridge: Cambridge University Press.
6. Benkler, Y. (2006). *The Wealth of Networks: How Social Production Transforms Markets and Freedom*. New Haven, CT: Yale University Press.
7. Brynjolfsson, E., & McAfee, A. (2014). *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. New York: W. W. Norton & Company.
8. Brynjolfsson, E., Li, D., & Raymond, L. R. (2023). *Generative AI at Work*. National Bureau of Economic Research Working Paper No. 31161. Cambridge, MA: NBER.
9. Castells, M. (2010). *The Rise of the Network Society: The Information Age: Economy, Society, and Culture* (2nd ed.). Oxford: Wiley-Blackwell.

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Preprints.org (www.preprints.org) | NOT PEER-REVIEWED | Posted: 4 August 2026 doi:10.20944/preprints202608.0116.v1

10. Crawford, K. (2021). *Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence*. New Haven: Yale University Press.
11. Daly, H. E. (1996). *Beyond Growth: The Economics of Sustainable Development*. Boston: Beacon Press.
12. De Filippi, P., & Wright, A. (2018). *Blockchain and the Law: The Rule of Code*. Cambridge, MA: Harvard University Press.
13. Drucker, P. F. (1993). *Post-Capitalist Society*. New York: HarperBusiness.
14. Dryzek, J. S., & Pickering, J. (2019). *The Politics of the Anthropocene*. Oxford: Oxford University Press.
15. Escobar, A. (2018). *Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds*. Durham: Duke University Press.
16. Feuerriegel, S., Hartmann, J., Janiesch, C., & Zschech, P. (2024). Generative AI: S. Feuerriegel et al. *Business & information systems engineering*, *66*(1), 111-126.
17. Floridi, L. (2023). *The Ethics of Artificial Intelligence: Principles, Challenges, and Opportunities*. Oxford: Oxford University Press.
18. Ford, M. (2015). *Rise of the Robots: Technology and the Threat of a Jobless Future*. New York: Basic Books.
19. Georgescu-Roegen, N. (1971). *The Entropy Law and the Economic Process*. Cambridge, MA: Harvard University Press.
20. Haraway, D. J. (2016). *Staying with the Trouble: Making Kin in the Chthulucene*. Durham, NC: Duke University Press.
21. Iansiti, M., & Lakhani, K. R. (2020). *Competing in the Age of AI: Strategy and Leadership When Algorithms and Networks Run the World*. Boston: Harvard Business Review Press.
22. Kauffman, S. A. (1993). *The Origins of Order: Self-Organization and Selection in Evolution*. New York: Oxford University Press.
23. Kelty, C. M. (2008). *Two Bits: The Cultural Significance of Free Software*. Durham, NC: Duke University Press.
24. Moleka, P. (2025a). Quantum Economics: Reframing Value, Scarcity, and Exchange in the Digital Age. *International Journal of Finance, Economics, and Management Studies, 1*(2), 41–46.
25. Moleka, P. (2025b). Post-Scarcity Development for Emerging Economies: Towards Hybrid Prosperity Systems Beyond Economic Output Measures. *International Journal of Finance, Economics, and Management Studies, 1*(2), 36–40.
26. Moleka, P. (2025c). *Towards an Infinity Economy: Designing Post-Scarcity Economic Systems in the Age of AI and Quantum Abundance*. Preprints.
27. Moleka, P. (2025d). *The Infinity Economy: The Blueprint for a Post-Scarcity Civilization*. Available at SSRN 5358002.
28. Morozov, E. (2019). Digital Feudalism: The Crisis of the Digital Commons. *New Left Review, 123*, 123–140.
29. Narayanan, A., Bonneau, J., Felten, E., Miller, A., & Goldfeder, S. (2016). *Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction*. Princeton, NJ: Princeton University Press.
30. O'Neil, C. (2016). *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. New York: Crown Publishing.
31. Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.
32. Raworth, K. (2017). *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist*. White River Junction, VT: Chelsea Green Publishing.
33. Ricardo, D. (1817). *On the Principles of Political Economy and Taxation*. London: John Murray.
34. Rifkin, J. (2014). *The Zero Marginal Cost Society: The Internet of Things, the Collaborative Commons, and the Eclipse of Capitalism*. New York: Palgrave Macmillan.
35. Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F. S., Lambin, E. F., ... & Foley, J. A. (2009). A safe operating space for humanity. *nature*, *461*(7263), 472-475.
36. Schwab, K. (2016). *The Fourth Industrial Revolution*. Geneva: World Economic Forum.
37. Sedkaoui, S. (2024). *Automated data analytics: Combining human creativity and AI power using ChatGPT*. John Wiley & Sons.
38. Sen, A. (2009). *The Idea of Justice*. Harvard University Press.
39. Smil, V. (2017). *Energy and Civilization: A History*. Cambridge, MA: MIT Press.

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Preprints.org (www.preprints.org) | NOT PEER-REVIEWED | Posted: 4 August 2026 doi:10.20944/preprints202608.0116.v1

40. Smith, A. (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations*. London: W. Strahan and T. Cadell.
41. UNESCO. (2021). *Recommendation on the Ethics of Artificial Intelligence*. Paris: UNESCO.
42. Zuboff, S. (2019). *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. New York: PublicAffairs

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