African Journal of Social and Behavioural Sciences (AJSBS)
Volume 15, Special Issue (2025) ISSN: 2141-209X

THE KARDASHEV SCALE THROUGH AN ISLAMIC LENS: THEOLOGICAL REFLECTIONS ON HUMAN TECHNOLOGICAL EVOLUTION

Abubakar Ado Adamu

Distance Learning Institute, Kaduna State University, Kaduna, Nigeria

*wadadanlami@gmail.com

ABSTRACT: The Kardashev Scale, proposed in 1964 by Russian astrophysicist Nikolai Kardashev, remains one of the most visionary models for assessing a civilization's level of technological advancement based on its capacity to harness energy. Spanning from Type I (planetary) to Type III (galactic), the scale illustrates humanity's potential trajectory toward universal mastery over energy. Recent research (Gray, 2020; Jiang et al., 2022; Zhang et al., 2023) has reinterpreted this framework, integrating sustainability metrics, computational modelling, and ethical dimensions to reflect modern scientific and philosophical concerns. This paper reexamines the Kardashev Scale through an Islamic theological lens, arguing that genuine civilizational progress must harmonize scientific innovation with divine stewardship (khilāfah), moral equilibrium (mīzān), and accountability (amānah). Drawing on Qur'anic principles, prophetic traditions, and modern scientific insights, the paper argues that humanity's advancement on the Kardashev Scale requires two interlinked commitments. First, the practice of moral stewardship, which demands that technological power be used responsibly to preserve justice, balance, and the wellbeing of creation. Second, the alignment of knowledge with humility, recognizing that human intellect (ʿilm) is a trust from Allah, to be pursued with reverence rather than arrogance. Together, these principles form the ethical foundation needed to guide both the Global North and South toward sustainable and spiritually grounded technological futures.

Keywords: Kardashev Scale; Islamic theology; energy ethics; sustainability; technological civilization; and moral stewardship

INTRODUCTION

From the earliest mastery of fire to the operation of particle accelerators and the mapping of distant galaxies, humanity's story has been defined by a relentless quest to understand and command energy in its various forms. Each milestone in agricultural mechanization, the industrial revolution, electrification, and nuclear power has marked a new epoch in our collective capacity to reshape both our environment and our destiny. This continuum of expanding energy control reflects not only technological advancement but also a profound shift in human perception: from surviving within nature to consciously engineering it. It is against this backdrop that Nikolai Kardashev (1964) proposed a bold and elegant framework for classifying civilizations according to their capacity to capture and utilize energy, offering a cosmic metric for technological maturity.

According to Kardashev's original formulation, a Type I civilization is one that has achieved complete command over the energy resources available on its home planet, roughly equivalent to 10^{16} watts, the total solar energy incident on Earth's surface. A Type II civilization would transcend planetary limits by harnessing the full energy output of its parent star, around 10^{26} watts, a feat imagined through constructs such as the Dyson Sphere. A Type III civilization, the pinnacle of the scale, would control the power of its entire galaxy on the order of 10^{36} watts, effectively manipulating stellar and interstellar processes for its purposes. This tripartite scale not only quantifies civilization growth but also symbolizes the expanding consciousness of intelligent life, from local planetary stewardship to potential galactic co-creation.

Subsequent researchers have built upon Kardashev's original framework by refining its metrics and expanding its conceptual boundaries to accommodate modern scientific and technological developments. For instance, Andah (2017) advanced the traditional energy-based classification by introducing a more nuanced categorization of alien civilizations along the Kardashev continuum, emphasizing intermediary stages and transitional phases that reflect varying degrees of energy mastery and technological complexity. This refinement allowed for a more realistic understanding of how civilizations might evolve incrementally rather than through abrupt leaps from one type to another. Gray (2020) further broadened the framework through the development of the Extended Kardashev Scale, which incorporates not only raw energy consumption but also factors such as information processing capacity, sustainability practices, and ecological equilibrium. This multidimensional approach recognized that true advancement may depend as much on efficiency and balance as on energy magnitude, aligning the scale with contemporary concerns about sustainable development and technological ethics.

Recent studies have also applied computational and predictive modeling to empirically estimate humanity's progress toward achieving Type I civilization status. For example, Jiang et al. (2022) and Zhang et al. (2023) utilized machine-learning algorithms and systems dynamics to simulate global energy trends, factoring in variables such as renewable energy expansion, population growth, and technological innovation. Their forecasts suggest a gradual yet measurable trajectory toward planetary-scale energy utilization, although highly dependent on policy and technological advancements. Similarly, Namboodiripad and Nimal (2021) projected that if current rates of energy consumption and technological advancement continue, humanity could attain planetary-civilization status within the next two centuries. Together, these studies illustrate a growing scholarly effort to conceptualize and quantify civilization advancement in theoretical terms, bridging astrophysical speculation with empirical modeling and sustainability science.

Beyond the technical and cosmological implications of the Kardashev framework lies a profound moral and theological inquiry: what ethical compass should guide humanity's ascent through the cosmic hierarchy? Modern Islamic scholarship provides a compelling metaphysical lens through which technological evolution can be understood as part of Allah's divine order of creation. The Qur'an describes humankind as khalīfah fī al-arḍ (vicegerent on Earth) (Qur'an 6:165), emphasizing a role of stewardship rather than domination. This appointment conveys both privilege and accountability. Humanity is endowed with intellect and creative capacity, yet bound by divine injunctions to preserve the harmony of creation. The Qur'anic principle of mīzān (balance) (Qur'an 55:7–8) underscores this equilibrium, reminding humankind that technological advancement

devoid of moral restraint leads to corruption and imbalance. Thus, the pursuit of higher energy mastery, as imagined by Kardashev, aligns with Islamic cosmology only when grounded in justice, moderation, and reverence for divine creation. This paper therefore asks how Islamic theology can reinterpret civilizational progress within the Kardashev framework, framing technological ascent as both a scientific and moral journey toward fulfilling humanity's divinely ordained stewardship.

In this light, the Kardashev progression takes on a spiritual dimension, a test of humanity's ability to harmonize power with purpose. Just as the movement from Type I to Type III civilizations represents increasing control over cosmic energy, the Qur'anic notion of stewardship calls for an inner mastery over desire, greed, and exploitation. Technological ascent, therefore, is not solely a measure of energy consumption or computational sophistication but of ethical evolution. Humanity's readiness for planetary civilization depends not merely on scientific capability but on its capacity to sustain moral equilibrium in the face of power. The convergence of the Kardashev vision with Qur'anic ethics reframes the cosmic journey as both a technological pilgrimage and a moral covenant, reminding humankind that every step toward universal mastery must remain anchored in divine accountability and the preservation of creation's sacred balance.

The motivation for this study arises from the widening gap between humanity's rapid technological progress and its slower moral and ethical development. According to recent scientific estimates, Earth's civilization currently ranks around 0.73 on the Kardashev Scale (Gray, 2017; Zhang et al., 2023), reflecting a transitional stage of partial planetary energy mastery where renewable innovation coexists with unsustainable consumption, ecological decline, and global inequality. While researchers such as Jiang et al. (2022) and Zhang et al. (2023) forecast humanity's attainment of Type I status within the next two centuries, their analyses largely remain technocentric, emphasizing engineering capacity, energy metrics, and computational projections. What these studies often overlook is the theological and moral dimension—how humanity's ethical, spiritual, and cultural readiness shapes its ability to wield such power responsibly. This study therefore addresses that gap by introducing an Islamic theological framework that situates civilizational progress within the principles of khilāfah (stewardship), mīzān (balance), and amānah (accountability). In doing so, it seeks to bridge the discourse between cosmic energy advancement and moral stewardship, offering a value-based model for guiding both scientific and ethical evolution.

From an Islamic theological perspective, this challenge reflects a deeper question of how knowledge (ʿilm) and power (qudrah) should be harmonized with taqwā (God-consciousness). The Qur'an calls humanity to be khalīfah fī al-arḍ (stewards on Earth) and to maintain mīzān (balance) in creation (Qur'an 6:165; 55:7–8). Therefore, as humanity ascends toward higher Kardashev levels, this study is motivated by the need to reinterpret civilizational progress through the lens of Islamic cosmology and ethics, one that defines advancement not merely by energy capacity but by spiritual accountability. This study aims to propose a model in which technological evolution serves as a form of moral and spiritual elevation, ensuring that the pursuit of cosmic mastery aligns with divine order, ecological justice, and the preservation of creation.

LITERATURE REVIEW

Scientific Development of the Kardashev Scale

The scientific genesis of the Kardashev Scale dates back to mid-20th-century radio astronomy and the early search for extraterrestrial intelligence. In his 1964 paper, Nikolai Kardashev proposed classifying advanced civilizations by the magnitude of energy they could harness—Type I as planetary, Type II as stellar, and Type III as galactic. However, this energy-centric model has proven both visionary and reductive, prompting growing scholarly tension over what "progress" truly means. Galántai (2006) critiqued the assumption that limitless energy capture equates to advancement, noting that such a framework risks privileging scale over sustainability and ignoring the thermodynamic, ecological, and social constraints that shape real civilizations.

Similarly, Cirković (2016) highlighted the conceptual fragility of measuring maturity through energy throughput alone, pointing out that civilizations might evolve toward efficiency and stability rather than ever-increasing consumption. These critiques expose a fundamental limitation in prior work: the failure to integrate ethical, ecological, and philosophical dimensions into civilizational classification. While the Kardashev model inspired decades of speculative and computational expansion, it remains morally agnostic, offering no guidance on whether the power it measures would be wielded responsibly—an omission this study seeks to address through a theological and value-based reinterpretation.

In recent decades, humanity's trajectory toward a Type I civilization has encountered profound and multidimensional constraints, rooted not only in technological capability but also in ecological, social, and moral limits. The accelerating crises of climate change, biodiversity loss, resource depletion, and energy inequity have transformed what once seemed a linear path of progress into a deeply contested terrain. Scholars such as Gray (2017, 2020) caution that the Kardashev dream of planetary-scale energy mastery cannot be divorced from the biospheric boundaries that sustain life. Scaling up energy consumption, they argue, is meaningless if it precipitates ecological collapse. Thus, the transition to Type I status requires a new kind of civilization —one that integrates technological sophistication with planetary stewardship, reconciling innovation with restraint. This framing redefines progress not as exponential energy extraction, but as the development of resilient, renewable, and equitable energy systems that preserve Earth's delicate balance.

Complementing this perspective, the rise of the "Energy Humanities" has reframed the energy question as a cultural and ethical issue, rather than a purely scientific one. As Mišík and Kujundžić (2021) contend, energy systems are embedded within structures of power, justice, and identity, meaning that every watt of energy carries social meaning—who produces it, who consumes it, and who bears its costs. From this vantage point, the path to a Type I civilization becomes as much about collective consciousness as it is about engineering prowess. It requires reimagining the moral and political architectures that underpin energy use, ensuring that technological advancements do not perpetuate inequality or environmental degradation. In essence, humanity's readiness for Type I status will be determined not only by our ability to harness planetary energy but also by our willingness to cultivate planetary ethics, a civilization capable of balancing progress with compassion and power with justice.

Complementing qualitative critique, quantitative forecasting has become a lively domain. Jiang et al. (2022) employed a model that combines energy trends and environmental constraints to estimate that reaching Type I may not occur until around 2371, roughly 350 years hence, under optimistic growth assumptions. Zhang et al. (2022, 2023) used machine learning to simulate civilization trajectories out to 2060, predicting that humanity might only reach about Type 0.7449 by then, with a global energy consumption of ~ 887 EJ. Their models also highlight how political, institutional, and ethical disruptions could delay or accelerate such transitions. More recently, Watchus (2025) has advanced the notion of substrate-agnostic measures of intelligence metrics that do not rely on energy consumption but instead seek to capture information processing, self-regulation, and emergent structure as signs of advanced civilization. Taken together, these lines of work suggest that while energy remains central, the next generation of civilizational classification will likely be multidimensional, integrating ethics, information, and ecological balance, not just raw power.

Philosophical and Theological Extensions

The philosophical and theological engagement with the Kardashev Scale reflects an effort to reconcile humanity's scientific ambition with its metaphysical boundaries. Skibinski (2020) examined the Fermi Paradox and energy-civilization typologies through the lens of theology, arguing that the absence of detectable extraterrestrial supercivilizations should remind humanity of its epistemic limitations and the primacy of humility in the face of divine creation. Rather than a linear ascent toward omnipotence, Skibinski framed the Kardashev progression as a spiritual mirror reflecting both human creativity and moral fallibility. Similarly, Sonia et al. (2022) proposed an "Extended Scaling Model" that integrates cognitive and societal dimensions into energy indices, asserting that the next evolutionary leap depends not merely on technological power but on ethical and collective intelligence. This move toward multi-dimensional scaling transforms the Kardashev model from a material metric into a philosophical paradigm of consciousness and responsibility.

Building on this metaphysical interpretation, Scobie (2025) reimagined the Kardashev Scale as a metaphor for consciousness evolution, where the expansion of energy mastery parallels the awakening of higher moral and spiritual awareness. He suggested that civilizations advance not only by harvesting cosmic energy but also by refining their awareness of unity, empathy, and purpose. This approach resonates with transhumanist and panpsychist perspectives, in which intelligence and consciousness pervade the universe. In this view, technological evolution becomes an external expression of an internal, spiritual transformation, suggesting that the ultimate "Type III" civilization would embody universal compassion and ethical coherence as much as astrophysical power. These philosophical critiques converge naturally with the Islamic vision of balance (mīzān) and stewardship (khilāfah), which defines progress not by the magnitude of power harnessed but by the wisdom and restraint with which it is exercised. In this way, the Kardashev discourse evolves into a dialogue about the soul of progress, where metaphysics and cosmology intertwine to reveal that the highest form of civilization is one guided by moral consciousness as much as by scientific capability.

Within Islamic intellectual frameworks, the Kardashev narrative resonates profoundly with ethical considerations. Taqi (2020) offered a bibliometric review of energy economics in Muslim-majority countries, highlighting how Qur'anic principles of moderation (wasatiyyah) and justice (ʿadl) subtly

influence sustainability policies. Tariq and Khan (2023) further argued that Islamic environmental ethics, rooted in stewardship (khilāfah) and accountability (ḥisāb), can guide renewable-energy innovation and prevent the moral excesses of unchecked industrialization. They contended that harnessing energy must align with the Qur'anic injunction: *"Do not cause corruption on the earth after it has been set right"* (Qur'an 7:56). Collectively, these theological perspectives assert that humanity's progression along the Kardashev trajectory must be moderated by ethical governance and spiritual balancewhere energy mastery is seen not as dominion but as a sacred trust (amānah) requiring wisdom, restraint, and justice in service of creation.

Islamic Worldview on Knowledge and Power

In the Islamic worldview, knowledge and power are inseparable from moral and spiritual responsibility. Islamic epistemology distinguishes between ʿilm al-ẓāhir, outer, empirical knowledge obtained through observation and reason, and ʿilm al-bāṭin, the inner, intuitive insight that connects the intellect to divine truth. Scholars such as Nasr (2007) and Sardar (1989) warned that when scientific and technological advancement is pursued without spiritual consciousness, it leads to fasād (corruption and imbalance) within creation. The Qur'an repeatedly calls humanity to contemplate the natural world not as an object of exploitation but as a sign (āyah) of divine wisdom: *"Indeed, in the creation of the heavens and the earth, and the alternation of the night and the day, are signs for those of understanding"* (Qur'an 3:190). Thus, knowledge in Islam is a form of worship, an act of uncovering divine order, while power derived from such knowledge is a trust (amānah) that must be exercised with justice, moderation, and humility toward both the Creator and creation.

The Qur'anic declaration "And He has subjected to you whatever is in the heavens and whatever is on the earth all from Him" (Qur'an 45:13) captures the theological essence of humankind's relationship with creation: privilege bound by purpose. Within this worldview, scientific discovery and technological advancement are not acts of rebellion against nature, but expressions of obedience and gratitude to the Creator. Every act of inquiry becomes an act of ʿibādah (worship), provided it aligns with divine intent and moral restraint. Knowledge, in this sense, is both a trust (amānah) and a test, demanding humility and ethical consciousness in its application. The pursuit of knowledge from harnessing the atom to exploring the stars thus reflects not hubris but the fulfillment of a divinely ordained role as stewards of the universe.

Interpreted through this metaphysical lens, the Kardashev Scale transcends its astrophysical origins to become a symbolic narrative of humanity's spiritual and moral evolution. Each civilizational level, from planetary to stellar to galactic mastery, can be seen as an unfolding of the human intellect entrusted by Allah, advancing through divine permission yet constrained by ethical law. To ascend the Kardashev ladder, therefore, is not merely to command energy but to cultivate wisdom, justice, and balance in its use. The ultimate measure of civilization, from an Islamic perspective, is not the magnitude of power harnessed but the righteousness with which it is wielded. In this synthesis, cosmic progress becomes inseparable from moral progress, reminding humankind that every technological leap must echo the Qur'anic principle of stewardship mastery in service, not domination. This Islamic perspective parallels, for instance, the Christian notion of creation care and the Buddhist ethic of right action, both of which emphasize compassion, restraint, and harmony

with the natural order. Together, these traditions frame technological evolution as a moral pilgrimage rather than a quest for control, underscoring that the true measure of civilization lies in its ability to wield knowledge with humility and reverence for life.

Type I Civilization: Stewardship of the Earth

A Type I civilization represents the stage at which humanity achieves mastery over all planetary energy resources while maintaining ecological and technological equilibrium. According to Gray (2017), humanity's current position of approximately 0.73 on the Kardashev Scale signifies that our species is still in transition, limited by unsustainable energy systems and uneven global development. Progress toward a full Type I civilization requires not merely harnessing renewable, clean energy sources such as solar, wind, and nuclear fusion, but also establishing global frameworks that promote cooperation, equity, and responsible consumption. Namboodiripad and Nimal (2021) as well as Jiang et al. (2022) argue that technological innovation alone is insufficient; unless humanity addresses political fragmentation, economic disparity, and ethical governance, the leap to planetary sustainability will remain elusive.

From an Islamic perspective, the pursuit of Type I civilization resonates deeply with the Qur'anic vision of stewardship (khilāfah fī al-arḍ), wherein humanity is appointed as a trustee of the Earth: *"It is He who made you successors upon the earth … that He may try you in what He has given you"* (Qur'an 6:165). This role entails not domination, but custodianship grounded in accountability and moral restraint. The Qur'anic principle of mīzān (balance) further warns against ecological transgression: *"And the heaven He raised and set the balance, so that you may not transgress in the balance"* (Qur'an 55:7–8). Within this moral framework, reaching Type I status becomes not merely a technological milestone but an ethical covenant, an obligation to align human progress with divine order, ensuring that power over nature is tempered by justice, compassion, and environmental harmony.

Tariq and Khan (2023) argue that renewable-energy ethics grounded in Islamic teachings foster a paradigm of moderation (wasatiyyah) and sustainability, linking spiritual accountability with responsible planetary management. They contend that the Qur'anic principles of stewardship (khilāfah) and balance (mīzān) provide a moral framework through which humanity can pursue technological progress without transgressing ecological limits. In this view, advancing toward Type I civilization is not simply an engineering achievement but a spiritual and ethical realization, one that harmonizes scientific innovation with divine trust (amānah). Thus, humanity's capacity to manage Earth's energy resources sustainably reflects its moral equilibrium, in which technological mastery and ethical consciousness evolve together to preserve the sanctity of creation.

Type II Civilization: Harnessing Stellar Energy

A Type II civilization signifies the stage where an intelligent species harnesses the total energy output of its star, most famously conceptualized through Dyson Spheres or stellar energy collectors (Andah, 2017). Progress toward this level requires breakthroughs in fusion technology, interplanetary resource extraction, and cooperative space governance, transforming humanity from a planetary to a solar-scale civilization. Yet, as Gray (2020) emphasizes, the challenge is not merely

technical but profoundly moral and political, a test of humanity's capacity to transcend national rivalries and channel collective intelligence toward shared survival rather than destructive competition. Achieving Type II civilization, therefore, would represent not just the conquest of stellar physics but the triumph of ethical unity and cooperative stewardship, where technological power is guided by a universal sense of responsibility toward life within and beyond Earth's bounds.

The Qur'an situates celestial bodies within divine order:

"*The sun runs on its fixed course for a term appointed; that is the decree of the Mighty, the Knowing*" (Qur'an 36:38).
"*And He subjected for you the sun and the moon, both constantly orbiting*" (Qur'an 14:33).

These verses affirm that all cosmic forces function under Allah's command, urging humankind to engage in scientific inquiry with humility and reverence rather than pride. From an Islamic standpoint, the transition toward a Type II civilization symbolizes an expansion of ʿilm (knowledge) guided by taqwā (God-consciousness), where intellectual advancement remains anchored in spiritual awareness. Without such moral grounding, technological progress risks devolving into istikbār (arrogance), the illusion of self-sufficiency and dominance over creation. As Mišík and Kujundžić (2021) caution, energy development detached from ethical culture reinforces inequality and environmental exploitation, mirroring the Qur'anic prohibition of isrāf (extravagance), which warns against transgressing the divinely ordained balance. Thus, the quest for stellar mastery must remain an act of devotional stewardship, ensuring that the pursuit of cosmic energy aligns with justice, humility, and the preservation of harmony in creation.

Type III Civilization: Galactic Mastery and Human Limitations

A Type III civilization represents the pinnacle of Kardashev's hierarchy—one capable of harnessing the collective energy of billions of stars across an entire galaxy. Such mastery implies technological prowess so vast that it borders on divine omnipotence, yet the Qur'an firmly situates humanity within its ontological limits. As revealed in *"The creation of the heavens and the earth is greater than the creation of mankind"* (Qur'an 40:57), human beings, despite their intellect and innovation, remain finite participants in the cosmic order, not its sovereigns. The verse *"O company of jinn and mankind, if you are able to pass beyond the regions of the heavens and the earth, then pass. You will not pass except by authority (sulṭān)"* (Qur'an 55:33) underscores that exploration of the cosmos depends on divine permission and moral legitimacy, not mere technical ability. From an Islamic viewpoint, therefore, aspiring toward galactic civilization must be seen not as a quest for deification, but as a humbling continuation of humanity's amānah (sacred trust)—to seek knowledge, exercise stewardship, and honor the boundaries of creation while acknowledging that ultimate power belongs only to Allah.

Classical Islamic exegesis interprets sulṭān in *Qur'an 55:33* as divine permission or knowledge, underscoring that any human attempt to transcend cosmic boundaries depends upon Allah's will. Skibinski (2020) draws a similar parallel in his theological reflections on cosmic exploration, asserting that even within a hypothetical galactic civilization, humanity would remain bound by divine law and moral order. Likewise, Malicse (2025) envisions that achieving such a level of Type

III mastery would likely involve advanced artificial intelligence, cybernetic integration, and post-biological evolution, yet these forms of progress would still operate within metaphysical and ethical limits set by the Creator. Islamic theology consistently situates ultimate knowledge and authority with Allah, as affirmed in *"And they will never encompass anything of His knowledge except what He wills"* (Qur'an 2:255). Hence, no matter how far civilization advances, even one spanning galaxies, humankind remains a creation, not a creator—a steward (khalīfah) entrusted with knowledge but forever subordinate to divine omniscience.

Methodological Approach

This study employs a qualitative theological–interpretive method, combining Qur'anic hermeneutics with conceptual analysis of scientific and philosophical models. Through textual interpretation (*tafsīr* and *taʾwīl*), relevant Qur'anic verses and ḥadīth are examined to extract ethical and metaphysical principles particularly those relating to stewardship (*khilāfah*), balance (*mīzān*), and accountability (*amānah*). These theological insights are then systematically aligned with the Kardashev framework and contemporary scientific discourse to reveal how Islamic cosmology redefines civilizational progress.

In methodological terms, the study draws on interpretive synthesis rather than empirical testing, emphasizing the dialogical relationship between faith-based ethics and cosmological theory. It critically evaluates existing scientific interpretations of the Kardashev Scale through an Islamic moral lens, using comparative analysis to highlight areas of convergence and tension between secular futurism and spiritual cosmology. This approach enables a holistic understanding of technological advancement as both a scientific and theological phenomenon, grounded in divine purpose and moral responsibility.

Ethical and Theological Integration

Science as ʿIbādah

In Islam, the pursuit of knowledge (*ʿilm*) is not merely an intellectual activity but a form of worship (*ʿibādah*), grounded in faith and guided by moral purpose. It reflects humanity's responsibility to seek understanding as part of divine stewardship (*khilāfah*), using knowledge to uphold balance (*mīzān*) rather than disrupt it. Through this lens, scientific inquiry becomes a sacred trust—an endeavour that deepens awareness of Allah's creation while directing human creativity toward justice, harmony, and the common good. The Prophet Muḥammad (peace be upon him) beautifully illustrated the transience of worldly knowledge in relation to divine omniscience, saying: *"The world compared to the Hereafter is like what one of you puts his finger into the sea; let him see what it brings forth"* (Ṣaḥīḥ Muslim 2858). This metaphor encapsulates the humility that must accompany all human inquiry, a recognition that, however vast our discoveries, they are but droplets compared to the infinite ocean of Allah's wisdom. Al-Ghazālī (2001) echoes this sentiment, reminding us that the human intellect, while a divine gift, must operate within the boundaries of servitude (ʿubūdiyyah), ensuring that scientific pursuits never devolve into arrogance or detachment from divine guidance.

Applied to the Kardashev Scale, this perspective reframes humanity's technological ascent as a sacred journey rather than a conquest of nature. Each stage of civilizational progress — planetary, stellar, or galactic — represents a progressive act of contemplation (*tafakkur*) upon the cosmic signs (*āyāt kawniyyah*) that reveal Allah's creative order. As Taqi (2020) explains, Islamic energy ethics interpret technological advancement through the moral framework of stewardship (*khilāfah*), emphasizing responsibility over domination. Thus, the pursuit of energy mastery aligns with the Qur'anic imperative to preserve the balance (*mīzān*) of creation. Within the paradigm of tawḥīd (divine unity), even the exploration of galaxies becomes an act of reverence, not rebellion — an expansion of understanding that magnifies the Creator's majesty rather than humanity's self-importance. In this view, science becomes sanctified labor, a devotional means through which humankind fulfills its divine mandate to seek knowledge in harmony with moral order and cosmic equilibrium.

Energy Justice and Islamic Economics

Energy justice forms a vital component of Islamic economic philosophy, which prioritizes fairness, communal welfare, and moral accountability in the distribution and use of resources. According to Taqi (2020) and Tariq and Khan (2023), access to energy should be regarded as a universal right rather than a privilege, echoing the Qur'anic injunctions against hoarding (kanz) and wastefulness (isrāf). The verse "Indeed, the wasteful are brothers of the devils" (Qur'an 17:27) condemns irresponsible consumption and the misuse of resources, establishing moderation and equity as divine imperatives. Within this ethical framework, Islamic economics seeks to align technological advancement with social justice, ensuring that the benefits of innovation, particularly in energy, are distributed broadly and not concentrated in the hands of a few.

Consequently, as humanity progresses toward higher Kardashev stages, the Islamic perspective insists that such development must incorporate zakāh-like redistribution principles, ensuring equitable access to emerging power sources such as solar, fusion, or space-based energy. This approach transforms energy from a tool of competition into an instrument of solidarity and stewardship (*khilāfah*). It frames technological evolution as both a moral and spiritual pursuit, integrating ʿadl (justice) and maṣlaḥah (public interest) into the architecture of progress. In contrast to materialist models that equate advancement with domination over nature, the Islamic path envisions civilization's ascent as a sacred trust—where each stage of energy mastery must reflect balance, compassion, and collective uplift in accordance with divine law.

In contrast to materialist models that equate advancement with domination over nature, the Islamic path envisions civilization's ascent as a sacred trust, where every stage of energy mastery must embody balance, compassion, and collective uplift in accordance with divine law. This vision aligns closely with contemporary global sustainability frameworks, such as the United Nations Sustainable Development Goals (SDGs) and the Paris Climate Agreement, which call for responsible innovation, equitable energy access, and the protection of ecological systems. By situating technological progress within a framework of ethical responsibility and shared prosperity, Islam contributes a spiritually grounded perspective to global sustainability discourse—affirming that true advancement must unite scientific capability with justice, environmental care, and the flourishing of all creation.

The Great Filter and Divine Trial

Astrobiologists, such as Jiang et al. (2022), describe the "Great Filter" as a series of existential barriers —self-inflicted or natural —that prevent civilizations from reaching advanced stages of development. These may include environmental collapse, uncontrolled artificial intelligence, pandemics, or nuclear annihilation, each representing a point where technological capacity outpaces moral wisdom. Humanity's present trajectory, marked by climate change and social fragmentation, suggests that survival depends not only on innovation but on the ethical integration of knowledge and responsibility. The Great Filter hypothesis, therefore, underscores the fragility of progress, warning that without collective discipline and foresight, civilizations risk extinguishing themselves before attaining higher Kardashev levels.

In contrast to materialist models that equate advancement with domination over nature, the Islamic path envisions civilization's ascent as a sacred trust, where each stage of energy mastery must reflect balance, compassion, and collective uplift in accordance with divine law. Contemporary work on existential risk (e.g., Trammell & Aschenbrenner, 2024; Growiec & Prettner, 2025) highlights that technological acceleration, even toward planetary or stellar-scale energy use, entails profound governance, ethical, and moral responsibilities. Thus, the Islamic framework offers a timely corrective, embedding these imperatives within a theological-ethical dimension that current scientific models often overlook.

From an Islamic perspective, these cosmic filters can be interpreted as divine trials (ibtilāʾ), through which humanity's moral character and stewardship are tested. The Qur'an declares: *"He has made you successors upon the earth … that He may try you in what He has given you"* (Qur'an 6:165), affirming that every gift of power or knowledge entails accountability. When viewed through this lens, crises such as ecological degradation, moral decay, or global conflict are not arbitrary disasters but reflections of humanity's failure to uphold khilāfah (stewardship) and mīzān (balance). The Islamic response, therefore, lies not only in technological reform but in spiritual renewal, restoring taqwā (God-consciousness) as the foundation of progress. In this synthesis, overcoming the Great Filter becomes both a scientific and moral challenge, requiring civilization to harmonize intellect with faith, and power with humility before the Creator.

Toward a Qur'anic Model of Civilizational Progress

The Islamic reinterpretation advances the original Kardashev discourse by transforming it from a purely technological and energy-based model into a moral-cosmological framework that unites scientific progress with ethical responsibility. Whereas the traditional scale measures civilization by its capacity to harness energy, the Islamic perspective introduces a parallel dimension of spiritual maturity and moral stewardship, redefining progress as the harmony between power and purpose. This reinterpretation yields a new theoretical insight, the Ethical-Kardashev Model, which posits that a civilization's true advancement depends not only on the quantity of energy it controls but also on the justice, compassion, and sustainability with which it wields that power. Hence, it situates cosmic evolution within the broader theological narrative of *khilāfah* (stewardship) and *mīzān* (balance), offering a value-based paradigm for aligning scientific ambition with divine accountability in both the Global North and South.

Kardashev Level	Scientific Stage	Islamic Analogue	Core Ethic
Type I	Planetary energy management	*Khilāfah & Mīzān*	Stewardship & balance
Type II	Stellar energy harnessing	*ʿIlm & Taqwā*	Knowledge with humility
Type III	Galactic civilization	*ʿAbdiyyah & Qadar*	Submission to Divine Will

This comparative framework highlights the profound intersection between scientific civilizational stages and Islamic metaphysical ethics, illustrating that humanity's technological journey can and must be guided by moral consciousness.

At the Type I level, representing planetary energy management, humanity learns to harness and balance Earth's natural resources responsibly. In the Islamic worldview, this corresponds to khilāfah (stewardship) and mīzān (balance), as emphasized in *Qur'an 6:165* and *55:7–8*. These concepts affirm that human beings are trustees, not owners, of the planet, and are accountable for preserving ecological equilibrium and ensuring justice in the use of resources. Thus, progress toward Type I civilization is not merely a feat of engineering but a moral contract to align energy mastery with environmental sustainability and social equity. When stewardship and balance are neglected, technological progress can transform into fasād (corruption), underscoring that an ethical order is the foundation of a sustainable civilization.

At the Type II stage, characterized by stellar energy harnessing, humanity's pursuit of interplanetary and stellar power parallels the Islamic principles of ʿilm (knowledge) and taqwā (God-consciousness). The Qur'an repeatedly commands reflection upon the heavens as signs of divine wisdom, urging believers to seek knowledge with humility rather than arrogance. Here, science and spirituality converge: while ʿilm propels humanity outward into the cosmos, taqwā restrains the ego, ensuring that exploration remains an act of reverence, not domination. Without this balance, advanced civilizations risk istikbār (arrogance), a moral failure that severs knowledge from divine accountability.

Finally, at the Type III level, representing galactic civilization, the corresponding Islamic analogue is ʿabdiyyah (servitude to God) and qadar (divine decree). These principles remind humanity that no matter how vast its technological reach, it remains subject to Allah's will. The verse *"And they will never encompass anything of His knowledge except what He wills"* (Qur'an 2:255) encapsulates this humility. Mastery over galaxies does not imply transcendence over divine authority but deepened awareness of creation's vastness and one's own limitations. Hence, the ultimate ethic at this stage is submission to Divine Will, recognizing that true advancement is spiritual, not just material.

Together, these correspondences construct a distinctly Islamic interpretation of the Kardashev Scale, in which scientific progress becomes a journey of moral ascent: from stewardship on Earth, through knowledge tempered by piety, to final submission before the Creator. This synthesis

transforms the Kardashev model from a measure of energy consumption into a scale of ethical and spiritual evolution, harmonizing technological ambition with humanity's sacred purpose.

Conclusion

The Islamic reinterpretation advances the original Kardashev discourse by transforming it from a purely technological and energy-based model into a moral-cosmological framework that unites scientific progress with ethical responsibility. Whereas the traditional scale measures civilization by its capacity to harness energy, the Islamic perspective introduces a parallel dimension of spiritual maturity and moral stewardship, redefining progress as the harmony between power and purpose. This reinterpretation yields a new theoretical insight the Ethical-Kardashev Model—which posits that a civilization's true advancement depends not only on the quantity of energy it controls but, on the justice, compassion, and sustainability with which it wields that power. In doing so, it situates cosmic evolution within the broader theological narrative of *khilāfah* (stewardship) and *mīzān* (balance), offering a value-based paradigm for aligning scientific ambition with divine accountability in both the Global North and South.

The Kardashev Scale continues to serve as a compelling metaphor for the potential trajectory of human civilization from mastering planetary energy to harnessing the power of stars and galaxies. Contemporary projections by Gray (2020), Zhang et al. (2023), and Malicse (2025) suggest that humanity is slowly advancing toward Type I civilization, but this progress remains uneven, as technological innovation often outpaces ethical and spiritual growth. This imbalance exposes the central paradox of modernity: while scientific power expands exponentially, moral consciousness frequently stagnates. The Islamic worldview addresses this asymmetry by urging the integration of ʿilm (knowledge) with taqwā (God-consciousness), positioning technological development within a moral order that ensures progress does not become self-destructive.

From the Qur'anic perspective, human advancement must reflect mīzān (balance) a divine equilibrium that sustains both creation and civilization. The Qur'an warns against fasād (corruption) and isrāf (excess), calling for a civilization rooted in humility, moderation, and justice. In this context, the Kardashev Scale transforms from a scientific ranking of energy consumption into a spiritual map of responsibility. Each level, planetary, stellar, and galactic, represents a new moral trial in which humanity must harmonize power with purpose. The Islamic principles of khilāfah (stewardship) and ʿadl (justice) provide the ethical scaffolding needed to navigate these transitions, reminding humankind that the true measure of advancement lies not in domination over the cosmos but in the preservation of divine order within it.

Ultimately, Islamic theology redefines civilization not by the magnitude of its energy use but by the depth of its moral awareness. The highest civilization is not the one that conquers galaxies, but the one that explores them with reverence, justice, and remembrance of the Creator. As the Qur'an teaches, power without faith leads to ruin, but knowledge guided by tawḥīd (divine unity) fulfills the purpose of creation itself. Thus, the path up the Kardashev ladder becomes a journey of ethical awakening, a progression from material mastery to spiritual maturity, where humanity's destiny is realized not in cosmic conquest but in conscious submission to Allah's will.

Implications for the Global South

For the Global South, the integration of Kardashev's civilizational framework with ethical and sustainability paradigms offers both a warning and an opportunity. The pursuit of planetary-scale energy mastery emphasizes the urgent need for inclusive technological development that addresses structural inequalities in access to energy, data, and innovation. Many countries in Africa, Asia, and Latin America remain energy-insecure, with large populations lacking stable access to electricity, a foundational requirement for Type I progress. Bridging this gap requires investment not only in renewable technologies such as solar, wind, and hydro but also in knowledge transfer, capacity building, and equitable financing mechanisms. Without such systemic empowerment, the Global South risks remaining energy-dependent, perpetuating a neo-colonial hierarchy in the global technological order.

Equally, the ethical dimensions emphasized by Islamic and humanistic interpretations of the Kardashev Scale resonate strongly with the development realities of the Global South, where rapid industrialization often collides with environmental degradation and social inequality. The path toward planetary civilization must therefore be contextualized within frameworks of climate justice, cultural identity, and local resilience. For the Global South, technological progress cannot merely replicate the extractive models of the industrialized North; it must prioritize sustainable sovereignty, harnessing indigenous knowledge systems, regional cooperation, and ethical governance to build energy futures that are both just and regenerative. Ultimately, the transition to a higher civilizational order will depend not on uniform technological adoption but on cultivating diverse, context-sensitive models of energy stewardship that reflect the moral, ecological, and social fabric of each society.

REFERENCES

Al-Ghazālī, A. H. (2001). *The revival of the religious sciences* (Iḥyāʾ ʿulūm al-dīn). Islamic Texts Society.

Andah, J. (2017). Classifying alien civilizations with the Kardashev scale. *UWIRE Text*, 1–1.

Galantai, Z. (2006). After Kardashev: Farewell to super civilizations. *Contact in Context, 2*(2), 159.

Gray, R. H. (2017). The biggest energy challenges facing humanity. *BBC Future*.

Gray, R. H. (2020). The extended Kardashev scale. *The Astronomical Journal, 159*(5), 228.

Jiang, J. H., Feng, F., Rosen, P. E., Fahy, K. A., Das, P., Obacz, P., … Zhu, Z. H. (2022). Avoiding the great filter: Predicting the timeline for humanity to reach Kardashev Type I civilization. *Galaxies, 10*(3), 68.

Kaku, M. (2011). *Physics of the future*. Anchor Books.

Kardashev, N. S. (1964). Transmission of information by extraterrestrial civilizations. *Soviet Astronomy, 8*(2), 217–221.

Malicse, A. (2025). The path to a Type III civilization: The future of humanity in the Kardashev scale.

Mišík, M., & Kujundžić, N. (Eds.). (2021). *Energy humanities: Current state and future directions*. Springer.

Namboodiripad, A., & Nimal, C. N. (2021). Predicting the timeline for Earth achieving Kardashev Scale Type 1 status. *Journal of Science and Technology, 6*, 2456–5660.

Nasr, S. H. (2007). *Religion and the order of nature*. Oxford University Press.

Sardar, Z. (1989). *Exploring Islam and science*. Mansell Publishing.

Scobie, A. J. (2025). A Kardashev scale perspective.

Skibinski, D. O. (2020). Some thoughts on the Fermi Paradox and extensions to the Kardashev scale in relation to theology. *Authorea Preprints*.

Sonia, A., Majia, K., & Prasadc, A. (2022). Civilizations through the eye of Kardashev: An extended scaling.

Ṣaḥīḥ Muslim. (n.d.). Hadith no. 2858.

Taqi, M. (2020). Energy economics in Islamic countries: A bibliometric review. *International Journal of Energy Economics and Policy, 11*(2), 88–95.

Tariq, M., & Khan, A. (2023). The role of Islamic teachings in advancing renewable energy technologies: A critical review. *Al-Awan, 1*(2), 23–33.

Watchus, B. (2025). Gauging extraterrestrial sentience & intelligence: Substrate-agnostic metrics for ETI beyond the Kardashev scale. *Preprints.org*.

Zhang, A., Yang, J., Luo, Y., & Fan, S. (2022). 2060: Civilization, energy, and progression of mankind on the Kardashev scale. *arXiv preprint arXiv:2208.12617*.

Zhang, A., Yang, J., Luo, Y., & Fan, S. (2023). Forecasting the progression of human civilization on the Kardashev scale through 2060 with a machine-learning approach. *Scientific Reports, 13*(1), 11305.