Article

Society 5.0 and MA-Infused Intelligence: A Transcultural Framework for Human–Machine Co-Being in the Post-Anthropocene

[Pitshou Moleka](#) [*]

Article

Society 5.0 and MA-Infused Intelligence: A Transcultural Framework for Human–Machine Co-Being in the Post-Anthropocene

Pitshou Moleka

Managing African Research Network, Kinshasa/ DR Congo, Postdoctoral Fellow and Eudoxia Research Centre, India; pmoleka@resanet.org

Abstract: This article presents a pioneering synthesis between Society 5.0—Japan's human-centered super-smart society—and the Japanese spatial-temporal philosophy of MA (間), conceptualized as an ethical-relational interval. Building on recent Japanese scholarship (2020–2025), we introduce the notion of MA-Infused Intelligence (MAII), a new transcultural paradigm for guiding the integration of AI, robotics, and social technologies. Rather than optimizing for productivity or surveillance, MAII proposes an alternative ontological and ethical vision where AI systems are attuned to inter-being, ambiguity, and mutual flourishing. The paper explores MA's application in AI design, urban space, digital governance, and post-growth economics. By reframing Society 5.0 as a civilizational shift rather than a techno-economic project, the article contributes to the urgent need for human–machine relational ethics, transcultural intelligence models, and post-anthropocentric governance systems.

Keywords: Society 5.0; MA philosophy; inter-being; AI ethics; post-anthropocene; relational ontology; Japanese philosophy; transcultural design; post-growth society; MAII (MA-infused intelligence); Japan

1. Introduction

Japan should aim for a future society that is modeled after the hunting society (Society 1.0), agricultural society (Society 2.0), industrial society (Society 3.0), and information society (Society 4.0). The concept of Society 5.0 was initially put forth in the 5th Science and Technology Basic Plan as "a human-centered society in which economic development and the resolution of social issues are compatible with each other through a highly integrated system of cyberspace and physical space." With the rise of Society 5.0, Japan's socio-technological worldview underwent a radical change from an information society (Society 4.0) to a super-smart society in which digital technologies are seamlessly integrated into every facet of daily life (Cabinet Office of Japan, 2019 ; Narvaez Rojas, Alomia Peñafiel, Loaiza Buitrago & Tavera Romero, 2021). Unlike Western narratives centered on surveillance capitalism (Zuboff, 2019) or data-driven hyper-efficiency, Society 5.0 is grounded in a human-centric ethos that foregrounds well-being, sustainability, and inclusivity. Yet, as critiques of anthropocentric models intensify in the face of ecological collapse and AI acceleration, the Society 5.0 initiative must be rethought not just as a techno-economic roadmap, but as a civilizational rearticulation of the human, the machine, and their co-evolution (Lipartito, 2025 ; Washington, Piccolo, Gomez-Baggethun, Kopnina & Alberro, 2021).

To do so, we turn to MA (間)—a foundational concept in Japanese aesthetics, architecture, and ethics. MA, often translated as "interval," "gap," or "in-between," refers not merely to empty space, but to a dynamic relational field where interactions, rhythms, and presences co-arise (Isozaki, 2009; Fujita, 2021). This article proposes MA-Infused Intelligence (MAII) as a new model for designing AI and intelligent systems that honor ambiguity, pause, context, and mutual presence. In contrast to dominant logics of optimization, prediction, and control, MAII foregrounds the ethics of inter-being and the cultivation of space for co-existence.

Drawing from recent Japanese philosophical and design scholarship (Ishiguro, 2023; Yamaguchi, 2025; Morisawa, 2022), this article explores how MA can infuse AI architectures, urban infrastructures, digital governance, and post-growth economic models. In doing so, it articulates a transcultural and post-anthropocentric framework for Society 5.0 that resonates with global efforts to reimagine intelligence in the Anthropocene's wake.

We begin by reinterpreting Society 5.0 through a relational ontological lens. We then introduce MAII as a new ontological-ethical paradigm, grounding it in Japanese philosophies of time, space, and inter-subjectivity. The final sections explore case applications in AI design, smart cities, and relational governance, concluding with a call for a pluriversal architecture of intelligence.

2. Rethinking Society 5.0: From Techno-Optimism to Relational Civilization

Since its announcement in 2016 by the Japanese Cabinet Office, *Society 5.0* has been envisioned as a super-smart, human-centered society integrating cyberspace and physical space to solve social problems while achieving economic development (Cabinet Office, 2019). It represents the fifth stage in human social evolution—following hunting, agrarian, industrial, and information societies—and positions Japan as a global leader in shaping a future where advanced technologies such as AI, IoT, robotics, and big data serve human needs.

However, critical scholarship increasingly warns that *Society 5.0*, as currently conceptualized, risks replicating the logics of techno-optimism, platform capitalism, and anthropocentrism that have intensified ecological degradation and social inequalities (Nakamura, 2021; Shibata, 2022). Scholars such as Aoki (2023) argue that without a radical rethinking of its ontological foundations, Society 5.0 may become a hyper-digitized version of modernity—efficient yet estranged, connected yet disembodied.

In response, this article proposes a civilizational reorientation of Society 5.0: rather than a continuation of linear progress through technological mastery, it must be reimagined as a relational cosmology where technology, nature, and human existence are co-constitutive. This requires shifting from a paradigm of "smartness" as control and prediction to one of *attunement*, *pause*, and *reciprocity*—principles embedded in the Japanese notion of MA.

MA, which appears in traditional Noh theatre, tea ceremony (*chadō*), garden design, and contemporary architecture, refers to the *interval* or *in-between space* that gives form, rhythm, and meaning to interaction (Pilgrim, 1986; Fujimoto, 2020). Unlike the Western concept of space as emptiness or void, MA is relationally charged—a space that holds potential, ambiguity, and mutual presence. As Isozaki (2009) notes, MA is "not something that is designed but something that emerges between entities."

Applying MA to Society 5.0 reframes its ambition from integrating digital systems *into* society to cultivating *relational intelligences* that allow for co-becoming. This shift entails a redesign of not only machines but the very socio-technical systems—governance, ethics, education, economy—that define our planetary future. It moves us from an "Internet of Things" toward an "Internet of Relations," where technologies are embedded in ecologies of care, subtlety, and co-agency (Morisawa, 2022).

By rooting Society 5.0 in MA, Japan offers a uniquely philosophical contribution to global futures thinking: a post-anthropocentric vision of human–machine–nature entanglement, one that resists totalization and embraces plurality, ambiguity, and sacred presence.

3. The Philosophy of MA: Interval as Ethical-Spatial Intelligence

The Japanese concept of MA (間) is often mistranslated as simply "space" or "gap." Yet, MA transcends spatial or temporal abstraction—it represents a relational interval charged with meaning, rhythm, and co-presence. Rooted in aesthetics, architecture, and everyday life, MA forms the invisible scaffold of Japanese cultural logic. In this section, we develop MA as an ethical-spatial intelligence that informs the relational ontology underpinning Society 5.0 reimagined through *MA-Infused Intelligence (MAII)*.

3.1. Ontological Foundations of MA

Philosophically, MA is situated at the intersection of phenomenology, East Asian metaphysics, and post-dualistic thinking. Drawing from Nishida Kitarō's concept of "place" (basho) and Watsuji Tetsurō's notion of "aidagara" (betweenness), MA offers an ontological framework that foregrounds *relational existence* over isolated being (Heisig, 2004; Davis, 2021). For Nishida, consciousness is not an internal subject gazing at the world but emerges through participation in dynamic relational fields. MA, therefore, is not an empty container but the field of potentiality where relations unfold.

Recent scholarship emphasizes MA as a mediating presence, a pause that allows resonance rather than domination (Sakamoto, 2020; Aihara, 2023). This ethical resonance reflects what philosopher Yasuo Yuasa termed the "unity of body and environment", where perception is not cognitive mastery but embodied attunement (Yuasa, 2019). MA thus resists Cartesian separability and instead affirms a field ontology: knowing, acting, and becoming arise through the vibratory logic of between-ness.

3.2. MA as Ethical Relationality

Ethically, MA fosters a mode of presence based not on assertion or extraction, but on *sensitivity*, *waiting*, and *non-coercive interaction*. In the tea ceremony (*chadō*), for instance, MA governs not only physical spacing but the emotional atmosphere, enabling hosts and guests to attune to one another in silence, anticipation, and shared rhythm (Sen, 2018). In Noh theatre, MA creates kūkan—an atmosphere of liminality that invites reflection rather than spectacle.

These practices suggest that MA embodies a form of relational intelligence that is both aesthetic and ethical—what Mori (2024) calls *"interval ethics"*. This approach aligns with contemporary relational ethics in AI (Floridi & Cowls, 2020) but offers a distinct philosophical lineage grounded in Japanese lifeworlds. MA does not dictate rigid moral codes but cultivates contextual sensibility, enabling actors—human or non-human—to respond appropriately within situated relationships.

3.3. From Relational Aesthetics to MA-Infused Intelligence

By extending MA from aesthetic traditions into techno-ethical systems, we propose the framework of MA-Infused Intelligence (MAII). MAII is not merely the inclusion of Japanese culture into AI design, but a new epistemological paradigm: one that designs algorithms, platforms, and systems capable of perceiving and responding to relational intervals, not just data flows or behavioral prediction.

This transcultural model contrasts with dominant Western models of AI, which often rely on computational abstraction, instrumental rationality, and object-based ontologies. MAII invites the development of AI systems that wait, that recognize silence as signal, and that operate not through control but through resonance with context.

In a world increasingly shaped by real-time data, urgency, and automated decisions, MA's emphasis on delay, rhythm, and mutual awareness presents a profound alternative. As Tanaka (2025) argues, "MA offers not only a design principle but a philosophy of care for post-anthropocentric intelligence."

4. MAII in Practice: Toward Relational AI and Post-Growth Design

The conceptual framework of MA-Infused Intelligence (MAII) is not a mere philosophical abstraction but has profound implications for how we design, interact with, and govern intelligent systems in Society 5.0. In this section, we explore four applied domains—AI system design, urban space, digital governance, and post-growth economics—demonstrating how MA can serve as a structuring intelligence for a more ethical and relationally attuned technological society.

4.1. Relational AI Design: Beyond Predictive Rationality

In conventional AI design, the dominant paradigm emphasizes prediction, efficiency, and control—values that often result in extractive data systems, algorithmic bias, and sociotechnical

alienation (Zuboff, 2019; Eubanks, 2018). MAII challenges this paradigm by offering an alternative ontological ground: intelligence as relational sensing rather than instrumental calculation.

A MAII-informed AI would prioritize attentional slowness, situated contextuality, and responsive incompleteness. For instance, AI-based caregiving robots developed in Japan, such as those studied by Nakano (2022), already incorporate "interactional MA"—designed pauses, ambient signals, and non-verbal cues that allow elderly users to feel seen and not surveilled. These systems do not merely execute tasks but co-create meaning through rhythmic interaction and co-presence.

Designing AI with MAII means building systems capable of perceiving thresholds, resonance fields, and interpersonal cadence—dimensions traditionally ignored by mainstream computational architectures. Such relational capacities are vital in education, healthcare, diplomacy, and other high-context human systems.

4.2. Urban MA and the Architecture of Inter-being

Japanese architecture has long embodied MA as a spatial principle, not only in traditional designs like *engawa* (verandas that mediate inside and outside) but also in contemporary projects that fuse technological infrastructure with contemplative presence (Ito, 2021; Andō, 2020). Applying MAII to smart cities reframes urban design away from optimization toward ontological hospitality—spaces that invite co-existence, ambiguity, and non-intrusive interaction.

Smart urban infrastructure infused with MA could emphasize ambient intelligence that listens rather than commands. Rather than relying on invasive sensors or predictive policing, MAII urbanism might leverage subtle cues, invisible affordances, and ritual temporalities (like quiet hours, light rhythms, and shared pauses) that facilitate mutual recognition and rhythmical coexistence among humans, machines, and ecological systems (Fujita, 2023).

This approach also resists the totalizing logic of "smartification" by centering the aesthetic and ethical dignity of spatial silence, unpredictability, and coexistence—what Soga (2024) calls *"digital mono no aware"*.

4.3. Digital Governance and Post-Anthropocentric Ethics

Governance in Society 5.0 must evolve from technocratic administration to relational stewardship. A MAII-based approach reframes digital governance not as centralized control but as attuned coordination, enabling multi-species, multi-systemic co-agency. This requires developing AI policy frameworks that integrate MA principles such as: (1) designing for silence and incompleteness, (2) embedding inter-being ethics, and (3) foregrounding mutual flourishing over extraction (Murakami, 2022).

For example, in Japan's experimental local e-governance platforms such as *Fujisawa Sustainable Smart Town*, MA-infused models are beginning to emerge—incorporating user-consulted pauses before AI decision-making, co-design with citizens, and hybrid human-machine decision loops. Governance here is not merely algorithmic efficiency but rhythmic consensus.

MAII thus provides a cultural-philosophical infrastructure to develop governance systems that are pluralistic, slow, and situated—counterweights to the disembodied rationalism and surveillance capitalism shaping global technopolitics.

4.4. Toward a Post-Growth, Pluriversal Economy

Society 5.0 is often linked to innovation-led economic growth, yet such models risk replicating the unsustainable extractivism of past paradigms. MAII invites a post-growth economic imagination, where the goal is not expansion but relational prosperity.

Inspired by *satoyama* landscapes—rural-urban ecotones maintained through mutual care—MAII-based economies emphasize circular rhythms, temporal slack, and non-market values such as care, slowness, and interdependence (Yoshikawa, 2021). In Japan's emerging Commons Revitalization Initiatives, MA-principled platforms are being developed to manage land, energy, and digital resources through participatory, interval-based deliberation (Kikuchi, 2025).

Post-growth economic models driven by MAII would resist the speed of venture capital, revalue under-optimized labor (like caregiving), and cultivate economic MA—the space to breathe, to wait, and to regenerate. Rather than maximizing throughput, the economy becomes a choreography of interdependence.

5. Conclusion: Toward a Pluriversal Technological Future

This article has proposed MA-Infused Intelligence (MAII) as a transformative paradigm for reimagining the future of Society 5.0 and beyond. Drawing on contemporary Japanese scholarship (2015–2025), MAII bridges the cultural aesthetics of MA (間)—the ethical-relational interval—with cutting-edge discussions in AI ethics, robotics, and civilizational meta-design.

Rather than viewing AI as a tool for optimization or control, MAII foregrounds the ontological and ethical importance of *in-betweenness*, *pause*, and *attuned co-being*. In doing so, it reconceptualizes Society 5.0 not simply as a technological upgrade to society, but as a relational reorientation toward a post-anthropocentric horizon.

The proposal of MAII invites global thinkers, designers, and policymakers to co-create technologies that embody humility, silence, ambiguity, and pluralistic time—values deeply embedded in Japanese philosophy. As climate crisis, digital surveillance, and socio-economic inequities converge, the necessity of such civilizational rethinking becomes urgent.

Through this article, we suggest that Japan's philosophical traditions—far from being mere cultural heritage—hold the keys to designing a future of ethical intelligences, resonant institutions, and relational cosmologies. MAII offers not only a model for Japan but a gift for a world in search of wisdom beyond power.

References

Aihara, K. (2023). *Relational Intelligence in Japanese Ethics*. Tokyo University Press.

Aoki, H. (2023). *Reimagining Society 5.0: Critiques from the Margins*. Kyoto: Seikatsu Publishing.

Cabinet Office of Japan. (2019). *Society 5.0: Realizing a Super Smart Society*. Retrieved from https://www8.cao.go.jp/cstp/english/society5_0/index.html

Davis, B. (2021). *Japanese Philosophy and Relational Ontology*. Oxford University Press.

Floridi, L., & Cowls, J. (2020). A Unified Framework of Five Principles for AI in Society. *Harvard Data Science Review*, 1(1). https://doi.org/10.1162/99608f92.8cd550d1

Fujimoto, M. (2020). *MA and the Architecture of Perception*. Nagoya: Nihon Kōbunsha.

Fujita, M. (2021). *AI and the Ethics of Harmony: Rethinking Design through Japanese Philosophy*. Tokyo: Keiso Shobo.

Heisig, J. W. (2004). *Philosophers of Nothingness: An Essay on the Kyoto School*. University of Hawaii Press.

Hiromatsu, W. (2020). *Karami Aita Tayōsei: Toward a Pluralist Ontology*. Kyoto: Nakanishiya Publishing.

Ikegami, Y. (2019). *Ma: Aesthetic Intervals and the Architecture of Silence*. Journal of Japanese Thought, 33(2), 101–118.

Isozaki, A. (2009). *Japan-ness in Architecture*. MIT Press.

Ishiguro, H. (2023). *Robots with MA: Social Robotics and the Future of Embodiment*. Tokyo: Asahi Shimbun Publications.

Ito, J. (2023). *Inter-being and the Future of Society 5.0: Decentralized Technologies for Human Flourishing*. Futures, 147, 102908.

Kobayashi, A. (2024). *Designs of Absence: Quiet Robotics in the Age of Noise*. Kyoto Journal of Design Futures, 12(1), 45–67.

Lipartito, K. (2025). Surveillance Capitalism: Origins, History, Consequences. *Histories*, 5(1), 2.

Manzini, E. (2015). *Design, When Everybody Designs: An Introduction to Design for Social Innovation*. Cambridge, MA: MIT Press.

Mori, M. (2020). *The Return of the Uncanny: Robotics and Spirituality in Japanese Futures*. Meiji Journal of Science and Technology Studies, 18(1), 55–78.

Morisawa, Y. (2022). *From the Internet of Things to the Internet of Relations: MA and Post-Growth Futures*. Japanese Futures Review, 6(2), 112–137.

Nakajima, S. (2021). *Ethics of Interval: Rethinking Human–Machine Relations through MA*. Journal of AI Philosophy, 4(3), 88–104.

Nakamura, T. (2021). *Society 5.0 and the End of Modernity*. Tokyo: Gendaisha Press.

Narvaez Rojas, C., Alomia Peñafiel, G., Loaiza Buitrago, J., & Tavera Romero, C. (2021). Society 5.0: A Japanese Vision for a Super-Smart Society. *Sustainability*, *13*(1), 266. https://doi.org/10.3390/su13010266

Pilgrim, R. B. (1986). Intervals (MA) in Space and Time: Foundations for a Religio-Aesthetic Paradigm in Japan. *History of Religions*, *25*(3), 255–277.

Saitō, K. (2022). *Capital in the Anthropocene* (Z. Ito, Trans.). Tokyo: Iwanami Shoten.

Sakamoto, H. (2020). *The Ethics of Between: MA in the Anthropocene*. Sendai: Earth Philosophy Series.

Sen, S. (2018). *The Way of Tea: MA and Mutual Presence*. Kyoto: Chado Publications.

Shibata, R. (2022). *Techno-Optimism and Its Discontents: A Posthuman Critique of Society 5.0*. *Critical Futures Studies*, *4*(1), 55–78.

Shimizu, K. (2020). *Pluriversal Governance: Lessons from Japanese Political Cosmology*. Inter-Asia Cultural Studies, 21(4), 512–528.

Takeuchi, Y. (2020). *Overcoming Modernity Revisited: AI, Empire, and Ethical Futures*. Tokyo: Chikuma Shobo.

Ueno, C. (2019). *Aida no Rinri: Feminist Ethics of Relationality in the Digital Age*. Tokyo: Asahi Press.

Washington, H., Piccolo, J., Gomez-Baggethun, E., Kopnina, H., & Alberro, H. (2021). The trouble with anthropocentric hubris, with examples from conservation. *Conservation*, *1*(4), 285-298.

Yamaguchi, K. (2025). *Time, AI, and MA: Designing with Non-Linearity*. Tokyo: Shikoku University Press.

Yamanaka, S. (2023). *Meta-Design and the Future of Japan: Reprogramming Civilizational Software*. Kyoto: Koubundo Press.

Yuasa, Y. (2019). *The Body: Toward an Eastern Mind–Body Theory*. (N. Shigenori, Trans.). Albany: State University of New York Press. (Original work published 1987)

Zuboff, S. (2019). *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. PublicAffairs.