Cultivating a Flourishing Intellectual Landscape for a Human-Centered and Sustainable Future: Sparking the Fusion of Society 5.0 and Collective Intelligence (Hybrid) Ecosystem Frameworks

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Abstract

This study advances a novel conceptual framework for reimagining global knowledge systems through the integration of the visionary principles of Society 5.0 and the evolving potential of a Collective Intelligence (Hybrid) Ecosystem. It seeks to resolve the limitations of fragmented and static models by proposing a dynamic, resilient, and human-centered approach that aligns technological advancement with social equity, sustainability, and holistic well-being. A secondary research method is employed, grounded in a systematic literature review and supported by a mixed-method design. The structural framework incorporates key elements of the Beckhard and Harris change model, while a PRISMA-guided Systematic Literature Review (SLR), integrated with a Five-Stage Analytical Model, enables rigorous analysis, synthesis, and redevelopment of existing knowledge systems. The findings reveal a global landscape shaped by eleven critical and widely recognized challenges that require renovated and cohesive strategies and solutions. These insights align with both the SDGs and the emerging HSDGs, proposing an integrative and actionable framework. Table 1 presents these strategies and solutions in a holistic manner,

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emphasizing the reclamation of agency, the promotion of multidisciplinary collaboration, and the cultivation of a society designed for comprehensive well-being. This analysis pioneers a groundbreaking conceptual synthesis and introduces a human-centered, responsive, and forward-compatible intellectual infrastructure, thought paramount for steering the challenges of the 21st century. Through this original integration, the study redefines how knowledge mechanisms are envisioned, structured, and carried out. This research contributes to both theory and practice through the design of an actionable and scalable pattern for policymakers, scholars, and global stakeholders, supporting the healthy evolution toward more inclusive, adaptive, and sustainable knowledge ecosystems.

Keywords

Intellectual landscape, Society 5.0, Collective Intelligence (Hybrid) Ecosystem, HSDG wisdom, 5Ps.

Introduction

The intellectual landscape is a vibrant tapestry woven from the collective wisdom of ideas, philosophies, cultural heritages, and knowledge systems that have flourished and intertwined throughout history. It is a dynamic, ever-evolving realm that is continually shaped by the progression of societies as they navigate new challenges and seize emerging opportunities. This landscape resonates with the force of innovation, where the reimagining of values converges with the continuous evolution of societies and civilizations on a global scale. The existing intellectual ecosystem is deeply intertwined with a myriad of influences, including politics, economics, societal and educational systems, technological advancements, value systems, and ever-evolving cultural customs. Each of these elements shapes our world, forging paths that guide humanity toward new horizons (Drucker, 1959, 1992; Tornjanski & Čudanov, 2021). As we step into a human-centric and vibrantly sustainable future, the intellectual panorama will remain energized by creativity, originality, innovation, and an unwavering quest for knowledge, fostering a healthy society for all. In this domain lies a fertile foundation built upon a more equitable and sustainable future nurtured by the collective vision, aspirations, and wisdom of all who engage with it (Tornjanski et al., 2024).

Throughout history, the evolution of intellectual horizons has been both dynamic and vital to the advancement of humankind, societies, and civilizations. However, the fundamental characteristics of a healthy intellectual ecosystem often fade into the background, eclipsed by the pressing demands of contemporary challenges and the limitations of current approaches, patterns and frameworks. The pervasive global challenges and systemic imperfections that characterize today provide vital opportunities to highlight deep-rooted vulnerabilities, inequities, and misalignments across various contexts. This research seeks to identify these challenges as a basis for an imperative examination of the current knowledge landscape, recognizing gaps, and proposing tailored solutions that move forward toward a cohesive, human-centered, and sustainable future. As we advance into a future shaped by the principles of Society 5.0 (Keidanren, 2016; Cabinet Office, Government of Japan, 2016; European Commission, Directorate-General for Research and Innovation, 2021) and the Collective Intelligence (Hybrid) Ecosystem

(Tornjanski et al., 2020), the ongoing evolution and reshaping of the intellectual landscape will be instrumental in charting a course toward a future anchored in human-centric and sustainable values. In this new era, the power of knowledge and creativity will be harnessed not only for growth but also for the healthy collective prosperity and well-being of all humanity.

Literature review

Society 5.0

Society 5.0 (Keidanren, 2016) envisions a future profoundly shaped by cutting-edge technological advancements and an intricately interconnected society. This model aims to increase quality of life by promoting social responsibility and aligning with the SDGs (United Nations, 2015; Fukuyama, 2018). The integration of emerging technologies to enhance everyday life is emphasized in recent studies, suggesting that Society 5.0 fosters progress in advanced economies. However, while it supports the development of a knowledge-intensive society, these technologies may also exacerbate existing social inequalities across different levels of global development. This vision is not yet fully realized, though early features are emerging.

In technologically advanced nations such as Japan, elements of Society 5.0 are increasingly evident, including high-speed internet, advanced research infrastructures, and the integration of big data, robotics, and digital innovation. The COVID-19 pandemic has accelerated these trends, highlighting growing reliance on digital technologies, the blurring of boundaries between home and work, and the convergence of physical and virtual realities (Hasan & Sony, 2023; Tornjanski et al., 2024).

While Society 5.0 enables significant opportunities for innovation and social progress, it also presents notable risks. Unequal access to technology may deepen global disparities, while dependence on digital systems raises concerns related to surveillance, data privacy, behavioral control, and mental health. In an interconnected society, advanced digital literacy and skills are vital, as reliance on traditional knowledge alone may lead to social and economic disadvantages (Hasan & Sony, 2023; Tornjanski et al., 2024).

As a concept originating in Japan, Society 5.0 reflects the country's leadership in innovation and may serve as a model for others. However, its implementation depends on economic capacity, governance, and digital readiness, making adoption uneven across countries. In less affluent contexts, the digital divide may further intensify inequalities, while in settings with fragile democratic systems, implementation may remain limited (Hasan & Sony, 2023; Tornjanski et al., 2024).

Overall, Society 5.0 represents both an opportunity and a challenge, requiring careful governance to ensure inclusive and sustainable development. The future society will likely emerge from a synthesis of current trends and this vision, with the COVID-19 pandemic accelerating the transition toward such an interconnected and technology-driven world (Hasan & Sony, 2023; Tornjanski et al., 2024).

Collective Intelligence (Hybrid) Ecosystem

In contrast to Society 5.0, the Collective Intelligence (Hybrid) Ecosystem (Tornjanski et al., 2020) conceptualizes the synergy between human and machine intelligence as the foundation of a dynamic and open system integrating cognitive and emotional dimensions through open innovation. This framework advances a balanced approach to technological development, emphasizing inclusivity, equity, and resilience, while ensuring that innovation serves broader societal interests.

The convergence of physical and virtual domains facilitates the holistic evolution of societies and reflects a vision centered on sustainability, prosperity, and human well-being. The model further acknowledges the complexity of contemporary global challenges and highlights the central role of human agency in shaping technological and societal trajectories.

Whereas Society 5.0 predominantly prioritizes technological advancement, the Collective Intelligence (Hybrid) Ecosystem advances a human-centered paradigm embedded within a broader political–economic context. It posits that such an orientation is essential for achieving sustainable growth, long-term resilience, and inclusive well-being, ensuring that no individual or community is left behind (Tornjanski et al., 2023b). Despite its conceptual strength, the model currently lacks formal institutional endorsement (Tornjanski et al., 2024).

Integrating Society 5.0 and Collective Intelligence for HSDGs

Emerging research indicates that integrating the strengths of Society 5.0 with the Collective Intelligence (Hybrid) Ecosystem may help bridge social divides and empower marginalized communities. Such a synthesis points toward a transition from the Sustainable Development Goals (SDGs) to an expanded framework, the Humanity Sustainable Development Goals (HSDGs), in which humanity assumes a central role in shaping sustainable development (Tornjanski et al., 2024).

The HSDG paradigm advances a holistic perspective that balances human well-being with the sustainable evolution of societies. While the SDGs provide a comprehensive global framework, HSDGs place greater emphasis on human flourishing, equity, social justice, and long-term resilience. This shift calls for a systemic re-evaluation by governments, international organizations, and broader society to more effectively integrate human-centered principles into global strategies and policy design.

In this context, the transition from SDGs to HSDGs represents not merely an extension of existing commitments, but a conceptual reorientation toward a more inclusive, human-centered, and sustainable future.

An exploration of the intellectual landscape

The comprehensive intellectual landscape is continually evolving and delivers a wealth of opportunities for discovery and wisdom. However, it also exemplifies noteworthy challenges that warrant engagement. The intellectual terrain is shaped by vibrant historical developments, the dynamic integration of fields, globalization, and technological advancements, making it significantly energetic and vital for exploration and elaboration. The convergence of knowledge management (hereafter: KM), intellectual capital (hereafter: IC), and intellectual property

(hereafter: IP) provides a plethora of complex and dynamic interplay in the existing theoretical fund of how organizations cultivate, harness, and protect their intellectual assets in the knowledge-driven economy. Each of these domains, rooted in its own historical and theoretical background, plays a unique role, yet their interactions are essential for decoding contemporary organizational strategies that rely on optimizing intellectual resources for sustained competitive advantage. However, this cohesion also unveils profound gaps and challenges within the intellectual landscape framework of the human-centric and sustainable society founded in Society 5.0 (Keidanren, 2016) and the Collective Intelligence (Hybrid) Ecosystem (Tornjanski et al., 2020).

A future that prioritizes humanity and sustainability, guided by Society 5.0 (Keidanren, 2016) and the Collective Intelligence (Hybrid) Ecosystem (Tornjanski et al., 2020), signals a profound transformation in the global intellectual landscape. The new generation demands a reimagining of knowledge, challenging existing frameworks and addressing systemic limitations. Central to this shift is recognizing deficiencies and fostering knowledge for the greater good through diverse perspectives. According to Konno and Schillaci (2021), understanding the evolving dynamics of society and the interconnections among stakeholders is vital. Traditionally, management and economics have considered employees as "resources" and customers as "consumers," overlooking their human value. A people-centered approach, by contrast, prioritizes genuine human relationships as the basis for social prosperity and authentic innovation. Embracing this paradigm shift requires a transformation of our worldview around three core principles: purpose, empathy, and place, leveraging collaborative human knowledge in a knowledge-driven society.

In advancing a human-centered, sustainable society aligned with the HSDGs (Tornjanski et al., 2024), this study addresses critical gaps in current knowledge structures. These discontinuities have significant global implications, highlighting several pressing challenges: (e.g.: World Intellectual Property Organization, n.d.-a, n.d.-b, 1994; United States Patent and Trademark Office, n.d.; DMCA.com, n.d.; European Patent Office, n.d.; European Parliament & Council of the European Union, 2017, 2019; UK Parliament, 1988, 1994, 2017; National People's Congress of the People's Republic of China, 2019, 2020; Japan Patent Office, n.d.; Ministry of Justice, Japan, n.d.; Government of India, 1970; IP Australia, n.d.; David, 1993; Bolatto et al., 2023; Tornjanski et al., 2015; Nordström & Ridderstråle, 2002; Yang, 2018):

1. **Heterogenous, deficient, inconsistent and expensive legislation and regulations on a global scale:** The existing landscape of international laws and regulations is characterized by dissonance, often resulting in fragmented and occasionally contradictory legal frameworks worldwide. This inconsistency imposes substantial expenditures and complexities on trade and processes on a global scale, as engaged parties struggle to efficiently and effectively comply with varying jurisdictional requirements.
2. **Predominant focus on organizations rather than ecosystems**: Current studies and policies focus mostly on the requirements and structures of organizations, often disregarding the broader view of societal ecosystems. This evident narrow perspective limits the recognition and understanding of the interdependencies and systemic interactions that are crucial for achieving sustainable development and resilience, particularly in challenging environments.
3. **Considerable vulnerability of individuals without safety and fair value in return**: Existing approaches, patterns, policies, and practices are designed to often expose

individuals to various risks, including digital, physical, and financial, without securing safety and proportional value in return. The recognized misalignment opens significant ethical concerns regarding fairness and equity, conflicting with both the sustainable development goals - SDGs and the deeper wisdom of the humanity sustainable development goals - HSDGs.

4. **Absence of an end-to-end process in an intellectual ecosystem and inadequate security within existing frameworks**: Current processes lack a comprehensive end-to-end system to ensure safety, privacy, and value creation for all stakeholders across the lifecycle of intellectual property. Ideas, vital for value creation, remain vulnerable without robust IP security and holistic development processes. This gap undermines trust in systems, institutions, and societies, exposing critical intellectual assets and conflicting with the principles of a human-centric, sustainable society and the SDGs and HSDGs frameworks.
5. **Underdeveloped and nonaligned intellectual property markets**: Global intellectual property markets are fragmented and underdeveloped, hindering innovation and fair competition. Gaps in laws, enforcement, and valuation practices, coupled with the lack of a cohesive transnational framework for securing and monetizing intellectual contributions, weaken the effectiveness of IP systems worldwide, falling short of the standards envisioned by HSDG principles.
6. **Fragmented practices and missed opportunities for holistic solutions due to inadequate interdisciplinary and multidisciplinary integration and partnership development**: Multifaceted challenges frequently remain limited within the frames of specific disciplines, skipping possibilities for holistic solutions that leverage interdisciplinary and multidisciplinary philosophies. This silo-based approach confines the growth of thorough strategies needed to manage numerous aspects of a “case” holistically and simultaneously.
7. **Deficient systems for conflict resolution and conflict management**: Existing systems for dispute resolution and conflict management frequently demonstrate weakness or unavailability, resulting in extended disputes, increased expenditures, and unsatisfactory outcomes. The recognized deficiencies can inhibit trust, innovation, collaboration, and the overall healthy development of society.
8. **Limited societal awareness and education:** Significant gaps have been identified in shared wisdom and education regarding the pressing issues in the current intellectual landscape. Without overall awareness and well-informed citizens, society is hindered in its ability to advocate for substantial reforms and effectively engage in policymaking processes. This deficit is inconsistent with the guidelines of the SDGs and the broader wisdom embodied in the HSDGs.
9. **Technological innovations surpassing actual legal patterns**: The rapid development of technological innovations has exceeded the capability of legal frameworks to adjust and adapt, making legal grey spaces and deepening threats linked with emerging technologies that are not adequately regulated, managed, and controlled rightly.
10. **Barriers to access and equity**: Numerous constraints, including economic, technological and social factors, limit fair entry to benefits and opportunities. These barriers promote inequality and hinder inclusive and healthy growth, undermining efforts to create a more equitable and sustainable future. Moreover, the barriers to access and inequality are inconsistent with the SDGs and the extended HSDGs framework.

11. **A lack of evidence and solutions that promote a human-centered and sustainable future**: Despite significant advancements, there is a clear lack of theory, empirical evidence, and practical solutions that advance both human well-being and sustainability in intellectual property. Existing strategies often fail to balance the multiple dimensions needed for sustainable, human-centered growth, underscoring the urgent need for visionary approaches that align intellectual endeavors with societal evolution in a harmonized and lasting way.

This research aims to bridge existing gaps by exploring innovative strategies that promote balanced, human-centered growth. It aligns with the principles of sustainable development, guiding the intellectual landscape toward HSDG as a foundation for a vibrant, inclusive, and human-centric society.

Methodology

Conceptual framework

This study is methodologically grounded in Beckhard and Harris's change model (Čudanov et al., 2019), constituting a dynamic organizing framework that bridges theoretical paradigms with practical exploration. The model's three core elements: dissatisfaction, vision, and fist steps, provide a narrative architecture that frames the research trajectory. As depicted in Figure 1, this tripartite framework supports the development of a methodologically coherent and theoretically informed inquiry.

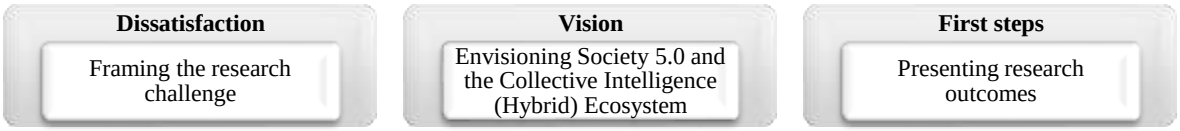

Figure 1. Structuring the research based on Beckhard and Harris's change model

Research design and methods

This study opted for a systematic literature review to ensure methodological rigor and comprehensive coverage of the research subject. An integrated dual-framework approach was employed, combining the PRISMA guidelines (Moher et al., 2009; Page et al., 2021) with the Five-Stage model (Torraco, 2005). The use of these complementary methods enhances the transparency and replicability of the review process, while also providing greater analytical depth. Systematic synthesis of the literature in this manner supports the study's objective of producing findings that are both robust and methodologically reliable (Senyo et al., 2019; Snyder, 2019).

Results and Discussion

The results presented in Table 1 highlight key initial steps, emphasizing the need for globally coordinated strategies and solutions aimed at advancing human well-being and sustainability, in alignment with the SDGs and HSDGs. The design of these strategies and solutions reflects a holistic and systematic approach to addressing discontinuities within the contemporary intellectual landscape (e.g.: Wiig, 1993; Nonaka & Takeuchi, 1995; Stewart, 1997;

Lessig, 2002; Chesbrough, 2003, 2019; Söderbaum, 2009; Tornjanski et al., 2015, 2020, 2021a,b, 2023a–d, 2024; Keidanren, 2016; Shiroishi et al., 2018; Ferreira & Serpa, 2018; Fasnacht, 2009, 2019; United Nations, 2015; Fukuyama, 2018; Yang, 2018; World Intellectual Property Organization, 2023; World Economic Forum, 2023; OECD, 2022; ISO 2023; Floridi et al., 2018; Agranoff & McGuire, 2003; Bryson et al., 2014; de la Cueva & Méndez, 2022).

Table 1. Strategies and solutions harmonized with Society 5.0, the Collective Intelligence (Hybrid) Ecosystem and HSDGs

Present challenge	Strategies and solutions
Heterogenous, deficient, inconsistent and expensive legislation and regulations on a global scale	1. Harmonization of global legal and regulatory frameworks aligned with HSDGs (standards, regional agreements); 2. Implementation of human-centered approaches: inclusive stakeholder engagement, public education, and awareness campaigns; 3. Integration of sustainable ecosystem practices and HSDGs into policy and industry adoption; 4. Integration of Society 5.0 and the Collective Intelligence (Hybrid) Ecosystem: AI-EI-enabled smart technologies, collaborative platforms, human-centric innovation; 5. Deployment of cost-reduction mechanisms: streamlined processes, supportive infrastructure; 6. Establishment of AI-EI-powered monitoring and evaluation systems with continuous improvement for fairness, equity, and social impact.
Predominant focus on organizations rather than ecosystems	1. Development of ecosystem mapping and modeling techniques: network analysis, system dynamics; 2. Formulation of integrated cross-disciplinary/sectoral/team and multidisciplinary policy frameworks; 3. Promotion of cross-boundary partnerships: joint initiatives, collaborative knowledge platforms; 4. Implementation of ecosystem resilience planning: adaptive, sustainable strategies, monitoring, and continuous learning with AI-EI support; 5. Measurement of ecosystem resilience and outcomes using societal impact metrics (economic, social, environmental).
Considerable vulnerability of individuals without safety and fair value in return	1. Design of risk assessment and mitigation frameworks using AI-EI-powered value-return matrices; 2. Establishment of equitable compensation models (financial and non-financial) across intellectual life cycles; 3. Institutionalization of ethical standards and regulatory safeguards; 4. Facilitation of stakeholder engagement via AI-EI-enabled participatory tools.
Absence of an end-to-end process in an intellectual ecosystem and inadequate security within existing frameworks	1. Implementation of end-to-end IP management frameworks in open ecosystems: Multi-layered protection, AI-EI-driven fairness assessment, and equitable value distribution, Open ecosystem principles (interoperability, knowledge sharing, collaborative innovation); 2. Deployment of advanced AI-EI technologies: monitoring, blockchain-based registries, automated compliance, digital IP management; 3. Promotion of multi-stakeholder collaboration (creators, policymakers, legal experts) facilitated by AI-EI for empathetic coordination; 4. Integration of societal and sustainability impact evaluation into IP processes.

Underdeveloped and nonaligned intellectual property markets	1. Standardization of global IP frameworks and policies; 2. Advancement of regional integration and international collaboration; 3. Establishment of innovation hubs and public-private partnerships; 4. Enhancement of education, training, and awareness initiatives; 5. Digitalization of IP registration and simplification of procedures; 6. Adoption of AI-EI-powered data-driven IP valuation methodologies; 7. Implementation of investment and innovation incentive schemes; 8. Development of transparent, equitable, and adaptive market mechanisms.
Fragmented practices and missed opportunities for holistic solutions due to inadequate interdisciplinary and multidisciplinary integration and partnership development	1. Promotion of cross-disciplinary and multidisciplinary research; 2. Design of integrated solution frameworks: systems thinking, problem decomposition, synthesis; 3. Facilitation of collaborative platforms and global networks enhanced with AI-EI for empathy-driven coordination; 4. Formulation of holistic frameworks: gap mapping, scalability, policy integration, iterative development; 5. Linking interdisciplinary research to measurable societal and sustainability outcomes.
Deficient systems for conflict resolution and conflict management	1. Adoption of AI-EI-enabled alternative dispute resolution mechanisms to detect emotional cues and fairness concerns; 2. Implementation of digitized dispute management systems with automated case management and human-centered recommendations; 3. Capacity building in dispute resolution: training, awareness, ecosystem inclusion; 4. Integration of AI-EI technology in conflict management for adaptive and empathetic decision support.
Limited societal awareness and education	1. Execution of public awareness campaigns and outreach programs; 2. Development of educational programs and training initiatives; 3. Facilitation of community engagement; 4. Establishment of collaborative initiatives supported by AI-EI-enabled platforms to enhance empathy and participation.
Technological innovations surpassing actual legal patterns	1. Creation of adaptive, flexible legal systems guided by AI-EI insights: continuous review, risk management, dynamic frameworks; 2. Implementation of regulatory sandboxes for ethical testing of emerging technologies; 3. Alignment of law and technology through cross-disciplinary collaboration and AI-EI-enabled scenario modeling; 4. Formulation of forward-looking policy development strategies integrating foresight, stakeholder inclusion, and continuous adaptation.
Barriers to access and equity	1. Institutionalization of inclusive policies: equity-based resource allocation, anti-discrimination, accountability; 2. Implementation of access and entry programs for underserved communities; 3. Development of equity-focused innovation strategies: affordable, scalable, inclusive solutions; 4. Promotion of global partnerships: knowledge exchange, capacity building, cross-border collaboration, policy influence facilitated by AI-EI coordination.

A lack of evidence and solutions that promote a human-cantered and sustainable future	1. Conduct of human-centered research supported by AI-EI for ethical and social insight; 2. Design of evidence-based frameworks guiding policy, innovation, and ecosystem development; 3. Implementation of innovative practices balancing IP protection, sustainability, and human well-being; 4. Facilitation of collaborative knowledge creation and research ecosystems enhanced by AI-EI.

Source: Authors

` This research opens a new phase in intellectual inquiry, guided by Beckhard and Harris's change model, toward a human-centered, sustainable future. Beyond early findings, it seeds transformative insights and strategies that align with Society 5.0 (Keidanren, 2016), the Collective Intelligence (Hybrid) Ecosystem (Tornjanski et al., 2020), the SDG blueprint (United Nations, 2015), and the HSDG framework (Tornjanski et al., 2024). The study emphasizes human well-being, collaboration, and sustainability, highlighting how innovation and technology can support resilient, inclusive, and equitable societies. While primarily conceptual, the research provides a foundation for a holistic, innovative framework. Its early-stage focus limits empirical confirmation, signaling the need for future studies to incorporate qualitative and quantitative methods to deepen understanding, particularly in light of COVID-19 (Adamopoulos et al., 2023, 2024a) and current climate and education challenges (Adamopoulos et al., 2022, 2024b; Hegedűs et al., 2024; Thapa et al., 2024; Ali et al., 2024). Despite these limitations, the study presents comprehensive, wisdom-informed strategies that place humanity and sustainability at the core of the intellectual landscape. Its findings empower the design of a more equitable, interconnected society, fostering innovation, shared understanding, and human-centered development for present and future generations (Săvoiu et al., 2023; Adizes, 2004; Adamopoulos et al., 2024c).

Conclusion

This study highlights a future in which the intellectual landscape develops in harmony with human-centered and sustainable principles. This research synthesizes the emerging concepts of Society 5.0 and the Collective Intelligence (Hybrid) Ecosystem models to provide an integrative perspective on the transformation of the intellectual ecosystem. Secondary data collection and the conceptual framing using the Beckhard and Harris change model facilitated an in-depth exploration of current challenges and opportunities. The findings shown in Table 1 illustrate pathways for bridging existing gaps, emphasizing holistic, balanced, and human-centered solutions aligned with the HSDGs. These insights provide actionable strategies and solutions for addressing pressing global challenges, placing human well-being and sustainability at the heart. The study's outcomes are significant for scholars, policymakers, and society at large, providing guidance for building an inclusive and sustainable intellectual landscape. The application of these approaches allows stakeholders to promote inclusive, forward-looking solutions with enduring benefits for present and future generations.

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