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Posted Date: 13 September 2024

doi: 10.20944/preprints202409.1064.v1

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Article

Innovationology: A Transdisciplinary Science for Transformative Innovation and Sustainable Global Development

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Abstract: As a pioneering transdisciplinary field, innovationology transcends the traditional boundaries of academic disciplines and development practices to address persistent global challenges. This article provides a comprehensive exploration of innovationology, delving deep into its philosophical foundations, ontological commitments, and ethical imperatives. By unpacking the core tenets of this innovative approach, the paper positions it as a robust and holistic science capable of catalyzing transformative innovation and sustainable development worldwide. Innovationology represents a paradigm shift that moves beyond conventional innovation and development theories, embracing a systems-oriented, community-centric, and decolonial praxis. Drawing on a synthesis of theoretical perspectives and empirical insights, the article examines innovationology's ontological commitment to marginalized communities as active agents of change, its epistemological grounding in pluralistic knowledge systems, and its ethical imperatives of social justice, environmental sustainability, and inclusive innovation. This in-depth analysis strengthens the conceptual and theoretical foundations of innovationology, providing critical guidance for its practical implementation and continued refinement as a cutting-edge transdisciplinary science for global transformation.

Keywords : Innovationology; philosophy of science; critical theory; sustainability science; sustainable development; transdisciplinary; ontology; ethics; social justice; environment; inclusive innovation; transformation; paradigm shift; knowledge systems; Indigenous knowledge; decolonial praxis; systems-oriented; community-centric; complexity theory; transition studies; Eurocentric; decolonial; postcolonial; social change

1. Introduction

1.1. Innovationology: Transcending Traditional Boundaries

In an era of persistent and complex global challenges, from rising inequalities and environmental degradation to sociopolitical instability and technological disruptions, conventional approaches to innovation and development have often fallen short in catalyzing meaningful, equitable, and sustainable change (Mazzucato, 2018; Raworth, 2017; Stiglitz et al., 2013). Faced with the limitations of traditional models, a new transdisciplinary field has emerged, known as innovationology, pioneered by Pitshou Moleka, a Congolose scholar (Moleka, 2024a, 2024b, 2024c, 2024d). Innovationology represents a paradigm shift that transcends the traditional boundaries of academic disciplines, drawing upon a rich tapestry of theoretical perspectives, including frugal and inclusive innovation, sustainable development, design thinking, complexity theory, and critical theory (Moleka, 2024a). At its core, innovationology is driven by a fundamental commitment to empowering marginalized communities, fostering collaborative innovation, and addressing complex development challenges through context-sensitive, adaptive, and decolonial interventions (Moleka, 2024a, 2024b).

1.2. Innovationology as a Transdisciplinary Science

Innovationology is not merely a conceptual framework or a set of practical tools; it is a transdisciplinary science that integrates diverse knowledge systems, methodologies, and epistemologies to understand and address the complex, interconnected challenges facing the world today (Moleka, 2024a). As a pioneering field, innovationology draws upon and synthesizes insights from a range of academic disciplines, including but not limited to, innovation studies, development studies, sustainability science, systems theory, and critical theory. This transdisciplinary nature of innovationology is a key strength, as it enables the field to transcend the siloed and reductionist perspectives that have often characterized traditional approaches to innovation and development. By embracing a holistic, systems-oriented understanding of the world, innovationology offers a robust and comprehensive framework for catalyzing transformative change in an era of global complexity and uncertainty.

1.3. The Need for a Deeper Philosophical Exploration

While the practical applications and empirical impacts of innovationology have been documented in the scholarly literature and practitioner communities (Moleka, 2024a), the deeper philosophical underpinnings that shape this innovative field have yet to be subjected to rigorous examination. As a pioneering transdisciplinary approach, innovationology transcends the traditional boundaries of academic disciplines, drawing upon diverse intellectual traditions and normative orientations. Unpacking the philosophical assumptions, ontological commitments, and ethical imperatives that define innovationology is crucial for several reasons. First, it strengthens the conceptual and theoretical foundations of the field, enhancing its analytical power and positioning it as a robust science for addressing complex global challenges. Second, it provides critical guidance for the practical implementation of innovationology-informed initiatives, ensuring alignment between the philosophical premises and the on-the-ground realities of innovation and development work. Third, a deeper philosophical exploration can inform the further refinement and scaling of innovationology, catalyzing productive dialogues across diverse academic and practitioner communities (Mazzucato & Kattel, 2020; Sengers et al., 2016).

1.4. Objectives and Scope of the Article

This article aims to delve deep into the philosophical underpinnings of innovationology, unpacking the core assumptions, ontological commitments, and ethical imperatives that collectively define this transformative approach to innovation and global development. By examining the philosophical premises shaping innovationology, the paper positions the field as a robust and holistic science capable of catalyzing sustainable and equitable change worldwide. The analysis presented in this article draws upon a synthesis of theoretical perspectives from various disciplines, including philosophy of science, critical theory, sustainability studies, and development studies. Furthermore, the paper incorporates insights from empirical case studies and practitioner experiences, grounding the philosophical exploration in the realities of innovationology-informed initiatives across diverse contexts and regions. The scope of this article extends beyond the confines of a single geographical region or thematic focus, aiming to explore the philosophical foundations of innovationology as a globally relevant transdisciplinary science.

2. Philosophical Assumptions of Innovationology

2.1. Community-Centered Agency and Self-Determination

At the heart of innovationology lies a fundamental assumption about the role of marginalized communities as active agents of change, rather than passive recipients of external interventions (Moleka, 2024a; Sen, 1999). This assumption is rooted in the belief that sustainable and equitable development, as well as transformative innovation, can only be achieved by empowering communities to define their own priorities, mobilize their assets and capabilities, and actively participate in the design, implementation, and evaluation of innovation and development initiatives (Chambers, 1983; Hickey & Mohan, 2004). This philosophical commitment to community-centered

agency is further reinforced by the principles of self-determination and participatory decision-making, which recognize the inherent rights of marginalized groups to exercise control over the processes that shape their lives (Gilbert & Lennox, 2020; García Villamil, 2021). Innovationology thus rejects the paternalistic and top-down approaches that have often characterized traditional innovation and development paradigms, instead embracing a fundamental belief in the transformative potential of community-driven solutions (Escobar, 2011; Korten, 1990).

2.2. Pluralistic Epistemologies and the Integration of Diverse Knowledge Systems

Innovationology is underpinned by a philosophical assumption that recognizes the value and legitimacy of multiple, co-existing knowledge systems, including scientific, traditional, and Indigenous forms of knowledge (Moleka, 2024a, 2024b). This pluralistic epistemological stance challenges the hegemony of Eurocentric, technocratic knowledge that has historically dominated innovation and development discourses and practices (Arora & Stirling, 2023 ; Santos, 2014; Smith, 2012). By embracing a diversity of knowledge paradigms, innovationology acknowledges the contextual relevance and experiential wisdom of marginalized communities, as well as the importance of integrating local, Indigenous, and traditional forms of knowledge with scientific and academic expertise (Yanou et al., 2023; Nakata, 2007). This philosophical commitment to epistemological pluralism is a key driver of innovationology's emphasis on co-creation, collaborative problem-solving, and the cross-pollination of ideas and perspectives (Nowotny et al., 2001).

2.3. Holistic and Systemic Approaches to Complex Challenges

Innovationology is underpinned by the philosophical assumption that complex global challenges, whether related to development, innovation, or sociopolitical issues, are inherently interconnected and require holistic, systemic approaches for effective resolution (Moleka, 2024b). This assumption is grounded in the recognition that these challenges cannot be addressed in isolation, as they are embedded within complex, adaptive socio-ecological systems (Berkes et al., 2003; Preiser et al., 2018). This philosophical orientation towards holistic and systemic thinking is reflected in innovationology's embrace of theoretical frameworks such as complexity theory, systems theory, and sustainability science (Preiser et al., 2018). By understanding challenges as dynamic, non-linear, and mutually reinforcing, innovationology advocates for interventions that target the root causes of problems, rather than addressing symptoms in isolation (Meadows, 2008; Waddock, 2013).

2.4. Emphasis on Contextual Relevance and Adaptability

Innovationology is underpinned by the philosophical assumption that innovation and development interventions must be tailored to the specific contexts and lived realities of the communities they aim to serve (Moleka, 2024a). This assumption rejects the one-size-fits-all approach that has often characterized traditional models, which have failed to account for the diversity of cultural, social, economic, and environmental conditions across different regions and communities (Escobar, 2011; Sachs, 2019). The philosophical commitment to contextual relevance is closely linked to innovationology's emphasis on adaptability and flexibility, as interventions must be able to evolve and respond to the dynamic, unpredictable nature of local contexts (Sengers et al., 2016). This philosophical stance aligns with the principles of frugal and inclusive innovation, which prioritize the development of context-appropriate solutions that leverage locally available resources and respond to the unique needs and constraints of marginalized communities (Basu et al., 2013; Pansera & Owen, 2018).

2.5. Philosophical Grounding in Critical Theory and Emancipatory Thought

Underpinning the philosophical assumptions of innovationology is a deep commitment to critical theory and emancipatory thought, which challenge the status quo and advocate for the dismantling of oppressive power structures (Moleka, 2024a). This philosophical orientation is informed by the work of scholars and activists who have long sought to expose and transform the

systemic inequalities and injustices that perpetuate marginalization and underdevelopment (Freire, 1970; Spivak, 1988). The critical and emancipatory foundations of innovationology are reflected in its emphasis on social justice, decolonial praxis, and the empowerment of marginalized communities as active agents of change (Ndlovu-Gatsheni, 2013). This philosophical stance rejects the neutral, technocratic approaches that have often characterized traditional innovation and development paradigms, instead embracing an explicitly normative orientation towards the creation of a more equitable, just, and sustainable global order (Escobar, 2018; Santos, 2014).

3. Ontological Foundations of Innovationology

3.1. *The Centrality of Marginalized Communities as Active Agents of Change*

The philosophical assumptions of innovationology translate into a distinct ontological commitment that positions marginalized communities as the central actors and driving force behind innovation and development processes. This ontological stance challenges the traditional view that casts marginalized groups as passive recipients of external interventions, instead recognizing them as dynamic, self-determining agents capable of mobilizing their own resources and capabilities to address the challenges they face (Moleka, 2024a; Sen, 1999). Innovationology's ontology is grounded in the belief that sustainable, equitable, and transformative change can only be achieved through the active participation and leadership of marginalized communities, who possess invaluable contextual knowledge, cultural wisdom, and experiential insights (Chambers, 1983). This ontological framing rejects the top-down, expert-driven approaches that have often characterized traditional innovation and development models, instead embracing a relational and community-centric understanding of these processes (Hickey & Mohan, 2004; Korten, 1990).

3.2. *The Relational and Interconnected Nature of Social, Economic, and Environmental Systems*

Innovationology's ontological foundations are further shaped by a recognition of the inherently relational and interconnected nature of social, economic, and environmental systems (Moleka, 2024b; Amadou, 2012). This ontological stance moves beyond the siloed, reductionist perspectives that have historically dominated innovation and development theory and practice, instead embracing a holistic and systemic understanding of the complex, adaptive, and dynamic contexts in which challenges are embedded (Berkes et al., 2003; Preiser et al., 2018). From an innovationology perspective, innovation and development challenges cannot be understood or addressed in isolation, as they are inextricably linked to the broader web of socio-ecological relationships and interdependencies (Ramalingam, 2013; Waddock, 2013). This ontological commitment to relational thinking underpins innovationology's emphasis on integrated, cross-sectoral approaches that target the root causes of problems, rather than treating symptoms in isolation (Meadows, 2008).

3.3. *The Recognition of Multiple, Co-Existing Realities and Knowledge Paradigms*

Innovationology's ontological foundations are characterized by a recognition of the existence of multiple, co-existing realities and knowledge paradigms, challenging the hegemony of Eurocentric, scientific epistemologies that have historically dominated innovation and development discourses (Moleka, 2024a, 2024b). This ontological stance is grounded in the belief that marginalized communities possess diverse, contextualized ways of understanding the world, which are equally valid and valuable as the dominant, technocratic knowledge systems that have shaped conventional innovation and development approaches (Almazán-Casali et al., 2021; Nakata, 2007; Santos, 2014). Innovationology's ontology thus embraces a pluralistic worldview that acknowledges the legitimacy of Indigenous, traditional, and local forms of knowledge, and the need to integrate these diverse epistemologies in the pursuit of sustainable and equitable change (Smith, 2012).

3.4. *The Dynamic, Flexible, and Emergent Nature of Innovation and Development*

Interventions Innovationology's ontological foundations are further shaped by the recognition that innovation and development interventions must be inherently dynamic, flexible, and emergent,

in order to effectively navigate the complex, unpredictable, and rapidly changing contexts in which they are implemented (Sengers et al., 2016). This ontological stance rejects the linear, predetermined models that have often characterized traditional approaches, instead embracing an understanding of innovation and development as non-linear, adaptive, and iterative processes (Hind, 2018 ; van Nistelrooij, 2020 ; Moleka, 2024a; Ramalingam, 2013). From an innovationology perspective, interventions must be designed with the capacity to evolve and respond to emerging challenges, leverage unanticipated opportunities, and co-create solutions in collaboration with the communities they aim to serve (Pansera & Owen, 2018).

4. Ethical Imperatives of Innovationology

4.1. Social Justice and the Equitable Distribution of Resources and Opportunities

At the core of innovationology's ethical foundations is a deep commitment to social justice and the equitable distribution of resources, assets, and opportunities, particularly for marginalized communities that have historically been excluded from innovation and development processes (Moleka, 2024a). This ethical imperative is grounded in the recognition that persistent global challenges, such as poverty, inequality, and social exclusion, are the products of systemic injustices and power imbalances that must be actively dismantled (Escobar, 2018; Freire, 1970). Innovationology's social justice orientation is reflected in its emphasis on empowering marginalized groups, fostering participatory decision-making, and ensuring that the benefits and outcomes of innovation and development initiatives are equitably distributed (Assembly, 2007). This ethical commitment challenges the status quo and calls for the transformation of entrenched power structures that perpetuate the marginalization of vulnerable populations (Ndlovu-Gatsheni, 2013; Spivak, 1988).

4.2. Environmental Sustainability and the Stewardship of Natural Ecosystems

Innovationology's ethical foundations are further defined by a strong commitment to environmental sustainability and the responsible stewardship of natural ecosystems, recognizing the profound interdependence between human wellbeing, innovation, and the health of the planet (O'Mahony, 2022). This ethical imperative is rooted in the understanding that innovation and development cannot be truly sustainable if they come at the expense of environmental degradation, resource depletion, and the disruption of delicate ecological balances (Berkes et al., 2003; Meadows, 2008; Raworth, 2017). Innovationology's environmental ethics call for innovation and development approaches that prioritize the regeneration and preservation of natural resources, the mitigation of climate change impacts, and the protection of biodiversity and ecosystem services (Sachs, 2019). This ethical stance rejects the extractive, exploitative, and unsustainable models that have historically characterized many conventional approaches, instead embracing a worldview that recognizes the intrinsic value of the natural world and the moral imperative to safeguard it for present and future generations (Waddock, 2013).

4.3. Decolonial Praxis and the Dismantling of Oppressive Power Structures

Innovationology's ethical foundations are deeply rooted in decolonial praxis, which seeks to challenge and transform the enduring legacies of colonial domination, exploitation, and epistemicide that have shaped global innovation and development discourses and practices (Abdulrahman & Mohammed, 2023). This ethical imperative is informed by the work of postcolonial scholars and activists who have long argued for the critical examination and dismantling of the Eurocentric, technocratic, and hegemonic frameworks that have historically marginalized and oppressed communities in the Global South (Escobar, 2018; Ndlovu-Gatsheni, 2013). Innovationology's decolonial ethics are reflected in its commitment to amplifying the voices and agencies of marginalized groups, validating their diverse knowledge systems, and empowering them to define and pursue their own visions of innovation and development (Smith, 2012). This ethical stance rejects the imposition of external, one-size-fits-all solutions, instead embracing a praxis of co-creation,

collaborative problem-solving, and the co-production of knowledge that challenges the asymmetries of power inherent in conventional approaches (Nowotny et al., 2001).

4.4. Ethical Commitment to Contextual Relevance and Adaptive Learning

Innovationology's ethical foundations are further defined by a deep commitment to ensuring the contextual relevance and adaptability of innovation and development interventions, recognizing that ethically sound practices must be responsive to the unique needs, constraints, and lived realities of the communities they aim to serve (Moleka, 2024a). This ethical imperative rejects the rigid, standardized models that have often characterized traditional approaches, instead embracing an ethical praxis that is flexible, iterative, and capable of evolving in response to emerging challenges and shifting contexts (Sengers et al., 2016). Innovationology's ethical commitment to contextual relevance is grounded in the recognition that innovation and development cannot be truly equitable or sustainable if they fail to account for the diverse cultural, social, economic, and environmental factors that shape the lived experiences of marginalized communities (Escobar, 1995; Pansera & Owen, 2018). This ethical stance calls for practitioners to engage in ongoing learning and adaptation, drawing upon the insights and feedback of local stakeholders to continuously refine their approaches and ensure their alignment with community priorities and constraints (Ramalingam, 2013).

4.5. Respect for the Dignity, Autonomy, and Self-Determination of Marginalized Communities

At the heart of innovationology's ethical foundations is a deep respect for the dignity, autonomy, and self-determination of marginalized communities, recognizing their inherent rights and capacities as active agents of change, rather than passive recipients of innovation and development interventions (Assembly, 2007). This ethical imperative is grounded in the principles of human rights and the United Nations Declaration on the Rights of Indigenous Peoples, which affirm the right of all people to freely determine their political, economic, social, and cultural development (Assembly, 2007). Innovationology's ethical commitment to community autonomy and self-determination is reflected in its insistence on participatory decision-making processes, the co-creation of initiatives, and the empowerment of marginalized groups to define and pursue their own visions of progress (Hickey & Mohan, 2004). This ethical stance rejects the paternalistic and top-down approaches that have often characterized conventional models, instead embracing a praxis of collaboration, mutual respect, and the recognition of the inherent worth and agency of all people (Chambers, 1983; Korten, 1990).

4.6. Ethical Obligation to Address Intersecting Inequities and Promote Inclusive Innovation and Development

Innovationology's ethical foundations are further shaped by a strong commitment to addressing the intersecting inequities that perpetuate the marginalization of vulnerable populations, recognizing that sustainable and equitable innovation and development cannot be achieved without tackling the systemic barriers and power imbalances that disproportionately impact women, racial and ethnic minorities, persons with disabilities, and other historically disadvantaged groups. This ethical imperative calls for innovation and development interventions that explicitly target the multidimensional nature of social, economic, and political inequities, adopting an intersectional lens that acknowledges the complex interactions between different forms of oppression and marginalization (Crenshaw, 1991; Hankivsky, 2014). Innovationology's ethical commitment to inclusive innovation and development is reflected in its emphasis on designing initiatives that are accessible, representative, and responsive to the diverse needs and perspectives of marginalized communities, fostering equitable access to resources, opportunities, and decision-making processes (United Nations, 2015).

5. Implications for Theory Development

5.1. Enhancing the Conceptual and Theoretical Foundations of Innovationology

By unpacking the philosophical assumptions, ontological commitments, and ethical imperatives that underpin innovationology, this article strengthens the conceptual and theoretical foundations of the field, enhancing its analytical power and positioning it as a robust transdisciplinary science for addressing complex global challenges. The philosophical exploration presented in this paper clarifies the core tenets and normative orientations of innovationology, providing a solid conceptual basis for its continued theoretical refinement and empirical application (Mazzucato & Kattel, 2020; Sengers et al., 2016).

5.2. Informing the Operationalization and Measurement of Innovationology Constructs

The philosophical analysis in this article can inform the operationalization and measurement of key innovationology constructs, such as community-centered agency, pluralistic epistemologies, and contextual relevance. By elucidating the deeper meaning and theoretical grounding of these concepts, the paper lays the groundwork for the development of robust, context-appropriate indicators and assessment frameworks that can capture the multidimensional nature of innovationology-informed initiatives (Moleka, 2024a).

5.3. Aligning Innovationology with Emerging Transdisciplinary Paradigms

The philosophical foundations of innovationology, as articulated in this article, align with and complement a range of cutting-edge transdisciplinary paradigms that have gained prominence in recent years, including sustainability science, complexity theory, and transition studies (Berkes et al., 2003; Preiser et al., 2018; Ramalingam, 2013). By positioning innovationology within this broader intellectual landscape, the paper highlights the field's conceptual synergies and opportunities for cross-pollination with other pioneering approaches to innovation, development, and social change (Waddock, 2013).

5.4. Informing the Further Refinement and Scaling of Innovationology

The philosophical exploration presented in this article can inform the ongoing refinement and scaling of innovationology as a cutting-edge transdisciplinary science for inclusive and sustainable innovation and development. By elucidating the deeper meaning and rationale behind the core tenets of innovationology, the paper provides critical guidance for researchers, policymakers, and practitioners seeking to further develop, apply, and expand the reach of this innovative approach (Sengers et al., 2016).

5.5. Positioning Innovationology as a Robust Theoretical Framework

Ultimately, this article aims to position innovationology as a comprehensive, theoretically grounded, and philosophically sound transdisciplinary science capable of catalyzing transformative change worldwide. By articulating the philosophical underpinnings that shape the core assumptions, ontological commitments, and ethical imperatives of innovationology, the paper strengthens the field's conceptual coherence and analytical rigor, enhancing its credibility and potential for wider adoption and impact within the global innovation and development landscape (Mazzucato, 2018; Raworth, 2017).

6. Implications for Practical Implementation

6.1. Guiding the Design, Implementation, and Evaluation of Innovationology-Informed Initiatives

The philosophical analysis presented in this article can provide critical guidance for the design, implementation, and evaluation of innovationology-informed innovation and development initiatives. By elucidating the core tenets and normative orientations of the field, the paper offers a robust conceptual foundation for practitioners to align their projects with the principles of community-centered agency, pluralistic epistemologies, contextual relevance, and decolonial praxis.

6.2. Informing the Training and Capacity-Building of Innovationology Practitioners

The philosophical underpinnings of innovationology, as outlined in this article, can inform the training and capacity-building of practitioners seeking to apply the framework in their work. By fostering a deep understanding of the assumptions, ontology, and ethics that shape innovationology, this philosophical exploration can equip practitioners with the conceptual tools and normative guidance necessary to effectively navigate the complexities of community engagement, cross-sectoral collaboration, and adaptive learning (Ramalingam, 2013).

6.3. Shaping the Engagement and Collaboration with Diverse Stakeholders

The philosophical foundations of innovationology, as articulated in this paper, can inform the ways in which practitioners engage and collaborate with diverse stakeholders, including marginalized communities, government agencies, private sector actors, and civil society organizations. By emphasizing the principles of participatory decision-making, epistemological pluralism, and decolonial praxis, the philosophical analysis can help to foster more equitable, inclusive, and mutually beneficial partnerships in the pursuit of sustainable and transformative innovation and development (Nowotny et al., 2001).

6.4. Providing a Philosophical Basis for the Further Refinement and Scaling of Innovationology

The philosophical exploration presented in this article can serve as a solid conceptual foundation for the ongoing refinement and scaling of innovationology as a globally relevant transdisciplinary science for inclusive innovation and development. By elucidating the deeper meaning and rationale behind the core tenets of innovationology, the paper can inform the ways in which the field is adapted, expanded, and disseminated to new contexts and communities, ensuring that its practical application remains aligned with its philosophical principles (Sengers et al., 2016).

6.5. Navigating Ethical Dilemmas and Moral Tensions in Innovationology-Driven Projects

The philosophical analysis of innovationology's ethical imperatives, as outlined in this article, can provide invaluable guidance for practitioners navigating the complex ethical dilemmas and moral tensions that may arise in the course of implementing innovationology-informed initiatives. By articulating the field's commitment to social justice, environmental sustainability, decolonial praxis, and community autonomy, the paper can help practitioners to make well-informed, ethically grounded decisions that uphold the normative foundations of innovationology.

7. Innovationology in the Global Context

7.1. Applicability and Adaptability of Innovationology across Diverse Contexts

The philosophical foundations of innovationology, as explored in this article, suggest that the field is inherently adaptable and applicable across diverse global contexts, reflecting its commitment to contextual relevance and its embrace of pluralistic knowledge systems (Moleka, 2024a; 2024b). By positioning innovationology as a flexible, community-centered approach that respects local realities and empowers marginalized groups, the paper highlights the field's potential for effective implementation in a wide range of sociocultural, economic, and geopolitical settings (Escobar, 1995; Pansera & Owen, 2018).

7.2. Addressing Global Challenges through an Innovationology Lens

The philosophical underpinnings of innovationology, as articulated in this article, suggest that the field is well-equipped to tackle a wide range of persistent global challenges, from poverty and inequality to environmental degradation and sociopolitical instability. By embracing a holistic, systems-oriented approach and prioritizing the empowerment of marginalized communities, innovationology offers a transformative paradigm for addressing the complex, interconnected nature of these global issues (Ramalingam, 2013).

7.3. Synergies and Complementarities with Other Transdisciplinary Approaches

The philosophical analysis presented in this article highlights the conceptual synergies and complementarities between innovationology and other cutting-edge transdisciplinary frameworks for innovation and development, such as sustainability science, complexity theory, and transition studies (Berkes et al., 2003; Preiser et al., 2018; Waddock, 2013). By positioning innovationology within this broader intellectual landscape, the paper suggests opportunities for productive cross-pollination, collaborative research, and the integration of innovationology with other pioneering approaches to inclusive and sustainable global change (Sengers et al., 2016).

7.4. Innovationology as a Catalyst for Transformative, Equitable, and Sustainable Change Worldwide

Ultimately, the philosophical foundations of innovationology, as articulated in this article, position the field as a powerful catalyst for transformative, equitable, and sustainable change on a global scale. By embracing a community-centered, pluralistic, and decolonial approach that prioritizes social justice, environmental stewardship, and the empowerment of marginalized groups, innovationology offers a robust and holistic transdisciplinary science capable of addressing the complex, interconnected challenges facing the world today (Moleka, 2024a).

8. Conclusion

8.1. Summarizing the Key Philosophical Foundations of Innovationology

This article has delved deep into the philosophical underpinnings of innovationology, unpacking the core assumptions, ontological commitments, and ethical imperatives that collectively define this transformative transdisciplinary science. By examining the philosophical premises shaping innovationology, the paper has positioned the field as a robust and holistic paradigm capable of catalyzing sustainable and equitable change worldwide.

8.2. Highlighting the Significance of This Philosophical Analysis

The philosophical exploration presented in this article holds significant importance for several reasons. First, it strengthens the conceptual and theoretical foundations of innovationology, enhancing its analytical power and positioning it as a credible and theoretically grounded transdisciplinary science for addressing complex global challenges. Second, it provides critical guidance for the practical implementation of innovationology-informed initiatives, ensuring alignment between the philosophical principles and the on-the-ground realities of innovation and development work. Third, this philosophical analysis can inform the further refinement and scaling of innovationology, catalyzing productive dialogues across diverse academic and practitioner communities.

8.3. Charting the Future Trajectory of Innovationology as a Transformative

Paradigm

Building on the philosophical foundations articulated in this article, the future trajectory of innovationology as a cutting-edge transdisciplinary science for inclusive and sustainable innovation and development holds immense promise. As the global community grapples with persistent and increasingly complex challenges, the philosophical tenets of innovationology – centered on community agency, pluralistic epistemologies, holistic and systemic approaches, contextual relevance, and decolonial praxis – offer a robust and transformative paradigm capable of catalyzing meaningful, equitable, and lasting change worldwide.

8.4. Calling for Further Interdisciplinary Dialogue and Collaboration

The philosophical exploration of innovationology presented in this article represents an important step in strengthening the conceptual and theoretical foundations of this pioneering

transdisciplinary science. However, the work is far from complete. Ongoing interdisciplinary dialogue and collaboration will be crucial for further refining, expanding, and disseminating innovationology as a globally relevant approach to innovation and development. The author calls upon researchers, policymakers, practitioners, and community stakeholders from diverse backgrounds to engage in productive exchanges, share insights, and collectively shape the future trajectory of this innovative and transformative paradigm. Through continued philosophical examination, empirical investigation, and collaborative engagement, the innovationology community can work towards solidifying its position as a robust and comprehensive transdisciplinary science capable of catalyzing meaningful, equitable, and sustainable change on a global scale. By embracing the core tenets of community-centered agency, pluralistic epistemologies, holistic and systemic thinking, contextual relevance, and decolonial praxis, innovationology offers a transformative pathway for addressing the complex, interconnected challenges facing the world today. As the innovationology field continues to evolve and expand, it will be crucial to maintain a strong commitment to its philosophical foundations, ensuring that the practical implementation of innovationology-informed initiatives remains aligned with its normative orientation towards social justice, environmental sustainability, and the empowerment of marginalized communities. Through this dedication to its philosophical underpinnings, innovationology can assert its position as a cutting-edge, globally relevant, and ethically grounded transdisciplinary science that catalyzes lasting, equitable, and impactful change worldwide.

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