Human Sustainability

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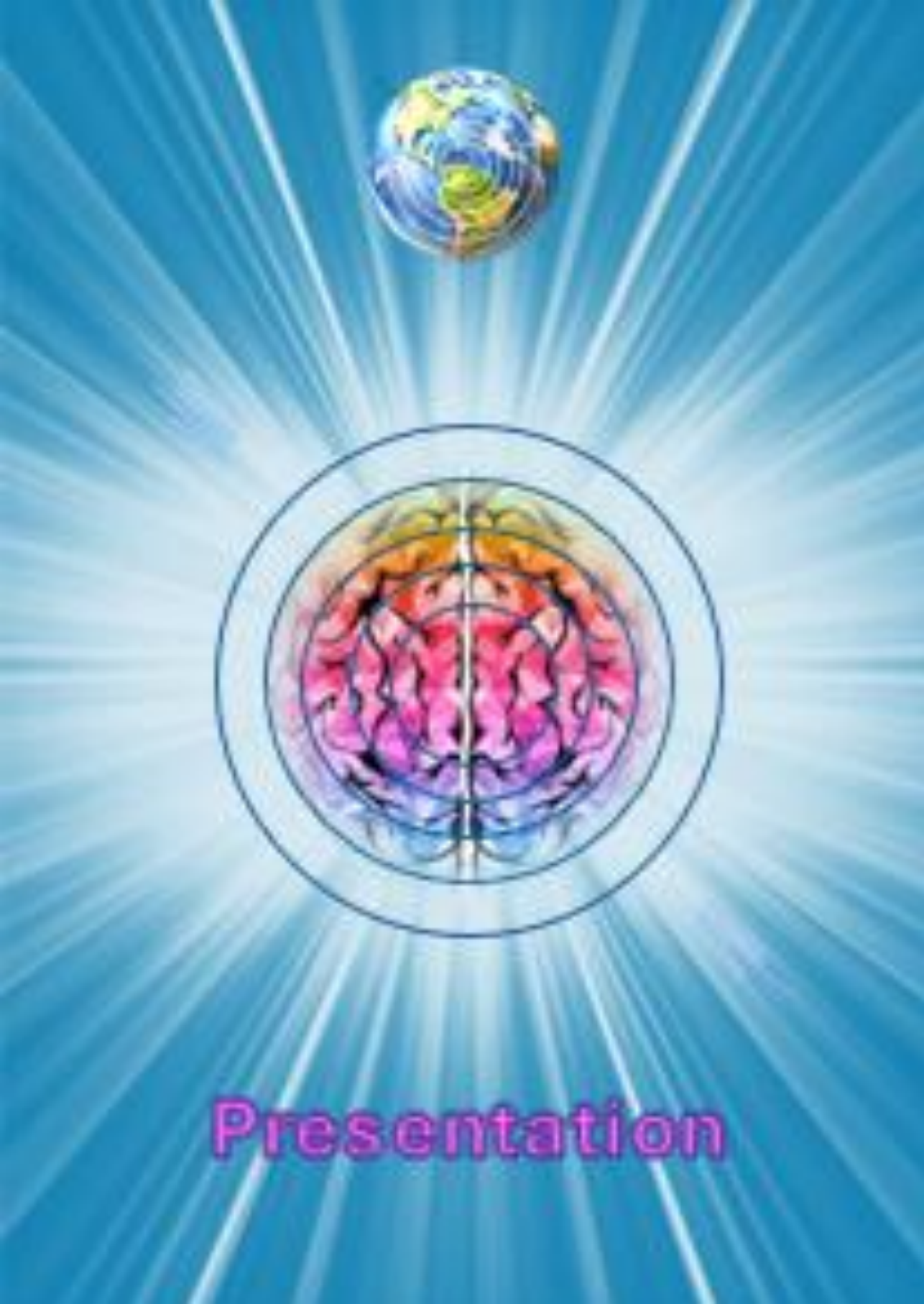
The purpose of life is to live correctly, think correctly, and act correctly. (Gandhi)

Wrong does not cease to be wrong just because the majority agrees and participates. (Tolstoy)

2024 • 2033
International Decade of
Sciences for Sustainable
Development

Sumary


Presentation

Presentation

> The true revolution is not a violent one, but one that occurs through the cultivation of integration and the intelligence of human beings, who, through the influence of their lives, will gradually promote radical transformations in society. (Krishnamurti)

This book presents Human Sustainability as a strategic ally for the necessary undertaking of creating better human beings. After all, what the world truly needs are better human beings. This is an imperative that must guide both thought and action concerning sustainability.

It is essential to emphasize that any approach to sustainability cannot and should not exclude the human being, especially due to their potential ability to lead all necessary actions for the improvement of local environments in favor of the global human ecosystem. "It is human global thinking that will provide the rethinking and human action for local endeavors and vice versa (Marujo, 2024)," because only humans are capable of undertaking innovative sustainable actions that ensure socio-environmental responsibility.

In this book, we will address objective issues related to human sustainability, particularly by always seeking to integrate scientific knowledge with common sense, as important allies in presenting feasible alternatives capable of contributing to effectively combating the unsustainability of contemporary society.

It is worth noting that this book – *Human Sustainability* – forms the guiding foundation of the project (Innovative Sustainable Education

Guided by Sciences for Sustainable Development as an Entrepreneurial Factor of the Local/Global Ecosystem) of the Institute for Science, Technology, and Global Sustainable Innovation, in partnership with UNESCO on the International Decade of Sciences for Sustainable Development (2024-2033). Therefore, this book is considered a contribution from the Institute to the innovative sustainable undertaking of this decade.

The following chapters will be presented, always grounded in sustainability across its dimensions – political, social, economic, environmental, and cultural – as a guiding foundation for reflections on Human Sustainability; as well as actions and activities necessarily experienced in distinct academic and professional contexts: Presentation, Transcendental Representation, Global Human Ecosystem, Human Being, Sustainability, Human Sustainability, Sustainable Development Goals (SDGs), International Decade of Sciences for Sustainable Development, Human Sustainability and Artificial Intelligence, Human Sustainability: Challenges and Trends, and Bibliographic References.

This "Presentation" aims to boldly and responsibly unveil Human Sustainability as an "Innovative Sustainable Mindset," in which the human being becomes the essential protagonist for the enhancement of various strategies for their own continuous improvement, both in experiencing and coexisting with distinct local and global environments.

The "Transcendental Representation" arises from the author's own creation of the art featured on the book's cover and, particularly, from Professor Mary Galdino's liberating interpretation of its representative characteristics, which invite us to reflect on human

sustainability and its interaction with the knowledge society, which urgently needs to prioritize the development of human dignity and the improvement of the global human ecosystem.

The "Global Human Ecosystem" advocates for placing the human being at the center of all strategic actions for the development of this global ecosystem, which is human and for the human being. Thus, it is understood that all actions that degrade, but also those that recover, are actions always carried out by humans within this ecosystem.

The "Human Being," in its genesis, is sustainable. In this dimension, it is presented from human origins as the driving force behind integral human development, playing a pivotal role in shaping the human being, organizations, and, consequently, local societies that are increasingly fragile in the face of uncontrollable demands from global society, which needs to regain its sustainability. However, this can only become possible through our actions – human beings – that are more responsible and committed to human life and that of the planet.

Sustainability is a determining factor for the survival of humanity and the planet. Indeed, it is vital to understand that sustainability is a fundamental issue for the development of human beings, especially regarding their interdependent relationships with the environment as a whole. However, sustainability needs to be undertaken, both necessarily and simultaneously, across its dimensions – political, social, economic, environmental, and cultural – as a strategic alternative to address ongoing challenges and responsibly cope with the adversities of a globalized world.

Human Sustainability is the true potential essence of human beings for their own evolution, always respecting others by prioritizing diversity, equity, and inclusion (DEI). These essential human conditions are key to promoting sustainability, because only humans are capable of progressively creating strategies to combat the widespread degradation of our "common home."

The "Sustainable Development Goals (SDGs)" are global institutional policies aimed at working on development, guided by sustainability that fosters socio-environmental responsibility, across various segments of society, to improve living conditions for all. There are 17 goals, officially in accordance with the United Nations (UN), and 169 targets that focus on enhancing the quality of life for all.

The International Decade of Science for Sustainable Development (2024-2033) – UNESCO-IDSSD – is another important global alternative aimed at integrating academia with other institutions (public, private, and the third sector), based on the integration of scientific knowledge and common sense, as a means of seeking contributions to address the irresponsible advancements that have been weakening ecosystems and affecting us increasingly in a concerning manner.

"Human Sustainability and Artificial Intelligence" boldly brings to light the reflection that human sustainability must have artificial intelligence as an important ally for its progress; at the same time, it asserts that human intelligence, the true origin of artificial intelligence, needs to be rethought in a humane, ethical, and responsible manner concerning both human life and that of the planet.

"Human Sustainability: Challenges and Trends" presents human sustainability as an imperative for life, while also being a challenging issue that needs to be proactively responsive to trends, rethinking in a transcendental strategic manner how the human being, in its essence, must remain at the center of decisions for human life and the global ecosystem.

> As one changes their own nature, the world's attitude toward them also changes. (Gandhi)

Certainly, I am addressing issues of my responsibility, or rather, of our responsibility. Because environmental degradation and socio-environmental problems constitute a common issue, and this problem is ours; therefore, it is our responsibility and commitment to, together, promote alternatives and actions that can progressively contribute to making the world better for everything and everyone.

> To be human is to be responsible. It is to feel that you are contributing to building the world. (Saint-Exupéry)

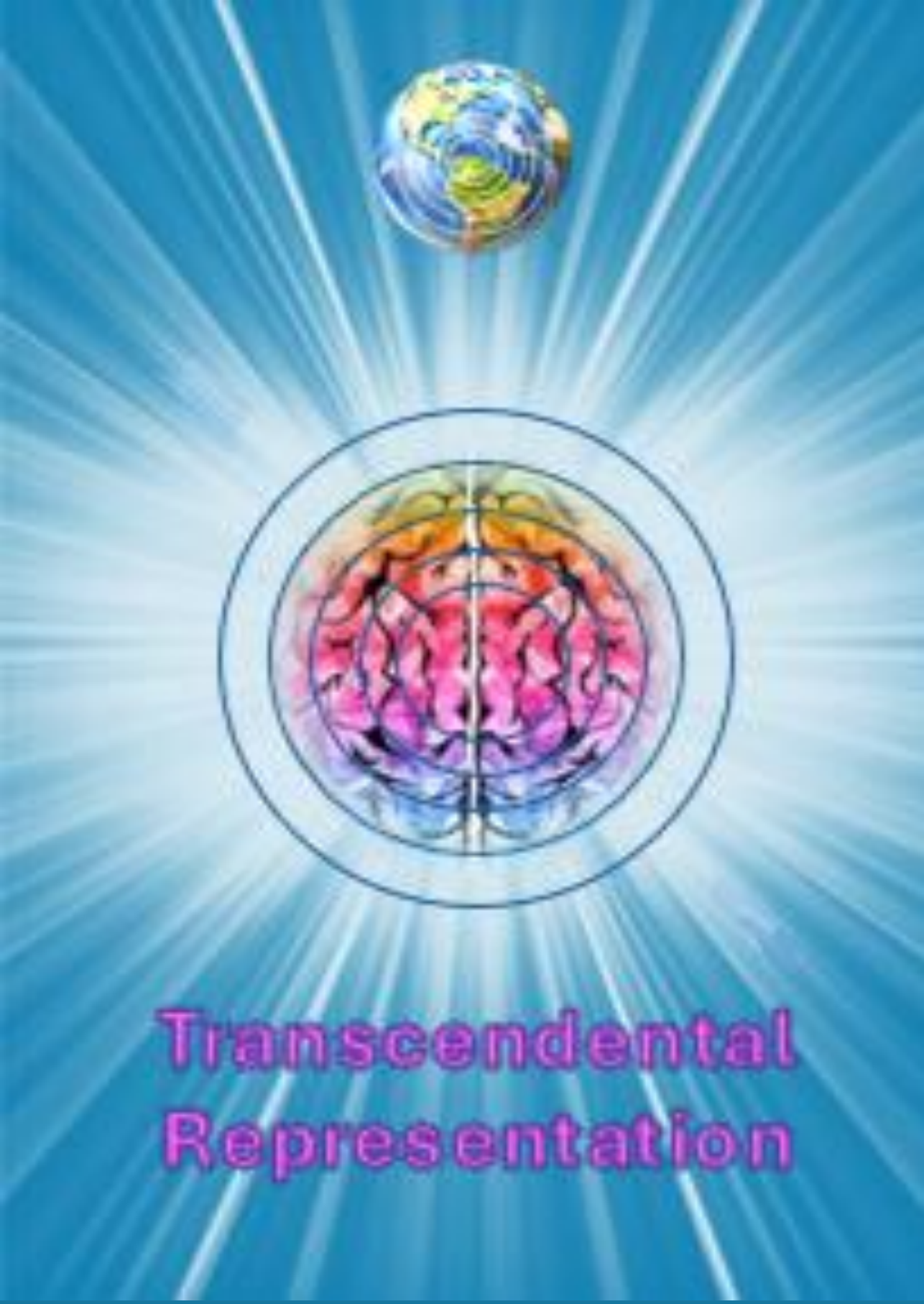
Thus, only we, human beings, can truly contribute to promoting actions and/or activities in various areas of knowledge and market segments, especially to mitigate the socio-environmental degradation that so weakens us, precisely to protect human life, institutions, and the planet. We are indeed in need of caring more for the human being and the

environment as a whole, for our own survival and socio-environmental well-being – that is, for our planet, our local societies, and the global one.

> The total elimination of risk leads to the total elimination of life. (Morin)

Human Sustainability becomes an important and essential condition for understanding sustainability and its need as a strategic factor in contemporary times, both for the undertaking of better human beings and for the continuous improvement of the global human ecosystem.

> Gratitude is the memory of the heart. (Aristotle)
>
> Marcelo Pereira Marujo


Transcendental
Representation

Transcendental Representation

> The intellect is satisfied with theories and explanations; intelligence is not. To understand the total process of existence, an integration of mind and heart in action is required. Intelligence is not separate from love. (Krishnamurti)

The cover art of the book that unveils *Human Sustainability*, created by Dr. Marcelo Pereira Marujo, constitutes a symbolic and scientific synthesis of the concept that gives the work its name. The visual design is a metaphorical representation of the five dimensions of sustainability—political, social, environmental, economic, and cultural—organically and dynamically articulated around human consciousness as the central source of balance and innovation.

Planet Earth, positioned at the core of the image, represents our "common home," encompassing all forms of life—that is, this global ecosystem so in need of our most responsible actions and commitments to one another and to the planet.

The brain, placed above Planet Earth, emerges as the epicenter of planetary consciousness, indicating that sustainability begins in the mind and the heart—in the capacity to think and act in a humane, ethical, empathetic, and creative manner.

The concentric waves symbolize the expansive movement of knowledge as a "continuum" of emotions and transcendental socio-environmental human practices that reverberate and, at the same time, echo across the environment, institutions, and borderless cultures.

The background, through its combination of colors, conveys solar energy—a vital force that animates and transforms this entire potential into the conditions necessary for the balance of human and environmental life. This intense luminosity represents the emergence of a new paradigm—that of Human Sustainability—which recognizes the interdependence among living systems and the material and immaterial dimensions of existence.

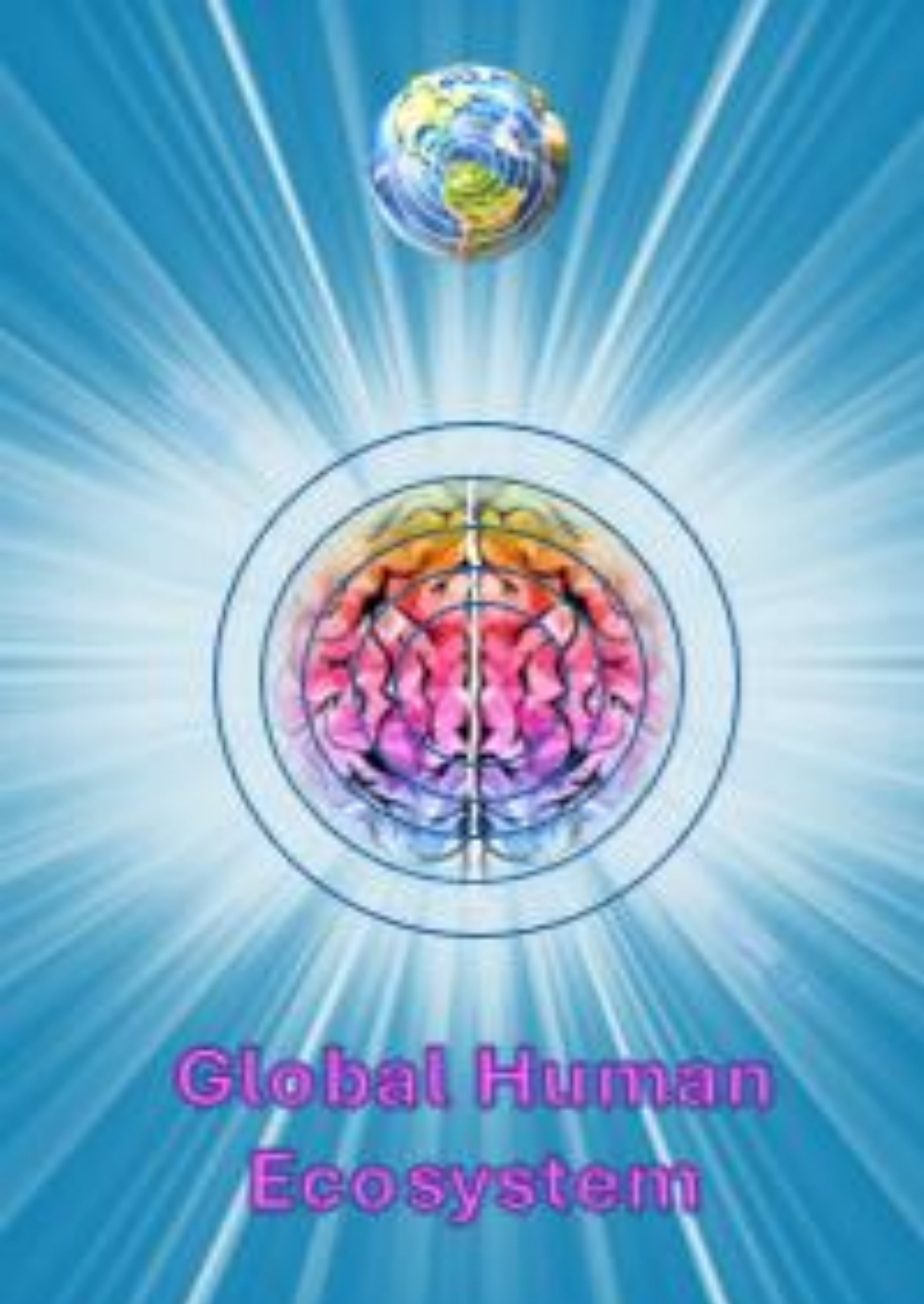
The sky-blue title conveys the essential serenity, wisdom, and transcendence required, reaffirming that human balance is the fundamental condition for planetary balance. Increasingly, this balance signals to the human being—that is, humankind—that interaction with nature is indispensable for continuous improvement, both of humanity itself and of the planet.

From a theoretical standpoint, the design dialogues with the thought of Fritjof Capra (2006) and Edgar Morin (2000), who conceive life as an integrated and complex system, as well as with Amartya Sen (2010) and Manfred Max-Neef (2014), who place human development at the center of sustainable global policies. The visual composition is therefore not decorative, but epistemological and undeniably strategic: a graphic expression of Marujo's theory, according to which sustainability becomes fully realized only when the human being— in his or her biological, emotional, cognitive, and spiritual totality— is recognized as a protagonist subject, rather than merely as a resource for development.

> To think a thinking thought is not redundancy; it is simply a thought that differs from an unthinking one by the transcendence of knowing and thinking. (Socrates)

Ultimately, this represents an innovative "sustainable mindset" in contemporary times, capable of repositioning the human being, with all his or her potential, as a strategic imperative for the endeavor of forming better human beings and learning institutions, in favor of societies that are more just, more dignified, and better for everything and for everyone.

Mary Neuza Dias Galdino
Institute of Science, Technology, and Global Sustainable Innovation
Vice-President Director


Global Human
Ecosystem

Human Global Ecosystem

> The environment is what we are within ourselves. We and the environment are not two different processes; we are the environment, and the environment is us. (Krishnamurti)

The human global ecosystem refers to a supersystem that encompasses the environment and the human being—or the human being and the environment—as a potential and inexhaustible source for the development of humanity and Planet Earth. For we, as human beings, must think and act now for the benefit of this profoundly degraded ecosystem, because the future is the present; the future is today; the future begins now.

From this perspective, this ecosystem is a determining factor for terrestrial human life, because the human being—and Planet Earth—the environment—become an indispensable *potential strategic unity* for human and planetary life, insofar as the environment is human, above all because we require this integrative condition for its continuous development.

In view of this commitment, I hereby indicate, in consonance with Rubem Alves, that my mission in this work "is to provoke intelligence, to provoke wonder, to provoke curiosity," because we must understand that adversities are opportunities for human and environmental improvement; likewise, continuously developing new competencies to become more resilient, proactive, and responsive to the immeasurable demands,

uncertainties, and problems arising from contemporary society becomes a necessary imperative for our ongoing evolution and survival.

This integration of competencies will be capable of promoting, necessarily and simultaneously, emerging contemporary sustainable variables—or rather, sustainability in its dimensions—political, social, economic, environmental, and cultural—making them essential and determining allies for integral human formation, which is required to rethink and act in defense of, and in prospecting, the human global ecosystem.

In this globalized world, innovation must be understood as a fundamental component for improving our capacity to interact more responsively with information, so that we may further develop the ability to transform technologies in favor of prospecting human and environmental systems.

As humans, we increasingly need to *be, dwell in, and experience* the human global ecosystem as part of our human existence—active and proactive—for this is not merely a necessity, but a condition for our survival and for the survival of the human global ecosystem itself (Marujo, 2021).

> Love is the feeling of imperfect beings, since the function of love is to lead the human being toward perfection. (Aristotle)

In the knowledge society, we need to consolidate our human principles and values and progressively develop the greatest of feelings: *love*. Love is the principle of life, because where there is love, there is

full life; and to live, we increasingly need to learn to "listen with the heart," "think with the heart," and "speak with the heart." It is precisely this synergy that will enable us to propel the human being toward life and continuous evolution (Marujo, 2025).

> *Only through love does the human being fully realize himself.* (Plato)

This feeling and its purity become the essence of life and its true meaning, because life only has meaning when we love others and the things we do—especially for others—since we must understand that to "serve" without limits is to love from our capacity to be more human, humble, and supportive.

From another socio-environmental perspective, much is currently proposed regarding the "place of speech"; however, this must be the reality for thinking about sustainability, which is human. Human sustainability, as a potential, is capable of undertaking actions and activities necessary to improve integral human formation and to foster learning institutions in favor of fairer, more dignified, and better societies—for everything and for everyone.

Attention: this place belongs to the human being, and all demands and actions must be conceived from the human being and this reality, for the benefit of the whole and of the environment in its totality, always respecting all local and global particularities.

Distinct local contexts must always be rethought and developed from their own realities, although we must consistently act in such a way

that "global thinking guides local rethinking and action—and vice versa" (Marujo, 2024). This is the true potential and driving source of the human global ecosystem.

It is important to note that, in the "society of having," our current unsustainable society, *liquid love* warns us of immeasurable consequences, such as:

> love is love until further notice—love according to the standard of consumer goods: keep it as long as it brings you satisfaction and replace it with others that promise even more satisfaction. It is love with a spectrum of immediate disposal and, thus, also of permanent anxiety hovering over it. (Bauman, 2004)

Nevertheless, even more important is to emphasize that, in the "society of being," in which we are constantly challenged to struggle for the regeneration of contemporary society, *agape* love—ineffable, superior, and transcendental—must guide all our thoughts and actions, so that we may undertake human and humanizing actions in the pursuit of local and global sustainability.

In this same direction, it is understood that love fosters peace in all its dimensions, especially true peace, which is inner peace. It is this peace that will enable us to act with greater care, responsibility, and commitment to the development of the human global ecosystem.

Love is the greatest of human feelings, the universal language for understanding, and essentially human. Therefore, love for one's neighbor and for diverse local environments is what will most effectively

contribute to the improvement of the global environment. Only through the integration and contribution of all will we achieve the innovative sustainability required for the continuous improvement of the human global ecosystem.

In light of this exposition grounded in humanity as human essence, the understanding of the human environment—or of the human as environment—living, active, proactive, and prospective—where the human being is necessarily an indispensable, organic, and dynamic part, is fundamental to foresee and provide for its development. Undoubtedly, human actions have been degrading human life and ecosystems; therefore, transformative actions in favor of the global ecosystem must be human-centered, because, ultimately, the global ecosystem is human.

The human global ecosystem must always be conceived globally in order to be rethought locally, repositioning the human being—essentially sustainable—as a determining strategic factor for the entire enterprise of the human global ecosystem, especially from human needs themselves, which are environmental.

Our anthropic—human—actions have been contributing negatively to environmental fragilization and consequent imbalance, both environmental and human, increasingly affecting us. However, when strategies are devised to combat this alarming environmental situation, the human being is not understood as the principal center for promoting the diverse actions in favor of the human global ecosystem, which is the essential part, since we are dealing with human life—that is, socio-environmental life.

This is the human global ecosystem in which public policies have been making every effort to propose alternatives, always focusing on the ecosystem and the environment; however, the environment is human, and the human being is the only entity capable of contributing effectively, efficiently, and efficaciously to mitigating his or her own impacts on local and global environments.

Therefore, the human being must be directly and indirectly at the center of all entrepreneurial actions within local ecosystems; it is human life—that is, the human global ecosystem—that must be conceived as the source of the most varied strategies capable of combating the degradation of its own human global ecosystem.

It is worth noting that the First United Nations World Conference on the Human Environment already signaled the "unity" of the human environment; yet efforts have largely moved toward environmental development without integrating the human being at the forefront. Strategies prioritize the ecosystem without placing the human being at the primary level, which has proven unsustainable.

The human being must definitively be—and remain—the center of all local and global strategic actions in favor of the human global ecosystem, for this is, in fact, an ecosystem oriented toward human and planetary life: the human global ecosystem. Certainly, the human being is the only one capable of confronting this global problem, which is ours—all of us—and the responsibility to contribute to its improvement is likewise ours.

In 2015, the United Nations (UN) launched the Sustainable Development Goals (SDGs). However, the implementation of the 2030

Agenda is a shared responsibility across the entire United Nations system; thus, the United Nations Development Programme (UNDP) plays a central role in coordinating and supporting countries in implementing the SDGs, constituting a major and highly significant endeavor to address socio-environmental challenges.

In the same vein, in 2024 the United Nations (UN) launched the International Decade of Sciences for Sustainable Development (2024–2033) as a means to strengthen the Sustainable Development Goals and, above all, their capacity to drive all associated targets (UNESCO – IDSSD, 2024).

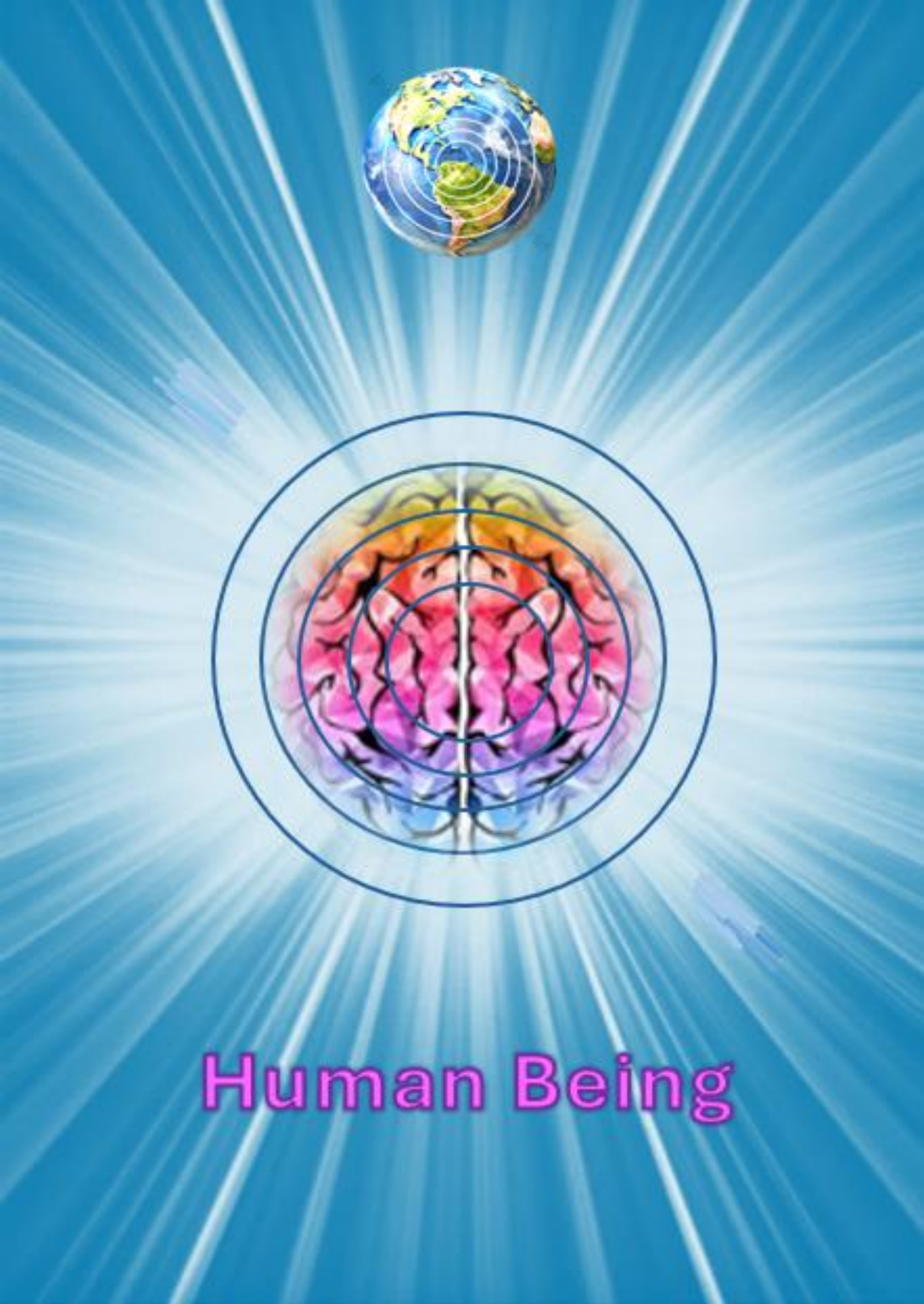
The connection between scientific knowledge and common-sense knowledge encouraged by this Decade may contribute to enabling drivers that foster alternatives for rethinking how to reposition the human being as the center of all enabling actions.

In light of the foregoing, it is understood that all these United Nations policies, although developed to improve the environment through human thought and consequent action, do not place the human being—the person—as the principal source of their strategies, neither as process nor as primary objective.

Therefore, it can be stated that the human global ecosystem is unsustainable, although it is sustainable by essence. This is because true sustainability and innovation reside in the human being; all power to promote transformative actions is essentially human. Why, then, is the human being not the primary and prospective agent for conceiving and undertaking improvements to the human global ecosystem?

Only the human being is capable of envisioning the evolutionary promotion of human life itself and of this ecosystem; certainly, this same human being is also capable of envisioning and promoting the evolutionary development of local and global environments.

Finally, it is considered that only with the protagonism of the human being—as the necessary mentoring center of all strategies and for all strategies—will we achieve the innovative sustainable development indispensable for the continuous development of the human global ecosystem.


Human Being

Human Being

> Man often becomes what he believes himself to be… if I have the conviction that I can do it, I will certainly acquire the capacity to do so, even if I do not have it at the beginning. (Gandhi)

At the outset, it is essential to highlight the humanizing and subjective authorship of the entire text, for it addresses the human being in his or her essence—or rather, in my own essence. This is who I am: grounded in Gonzaguinha (singer and songwriter) and embracing the understanding of being an "eternal learner," and despite many limitations, I open my heart. Nevertheless, I do so while always recognizing my responsibility and commitment to contribute to the necessary improvement of integral human formation and of the global human ecosystem.

In this direction, the search for inspiration in my own limited and innovative sustainable human essence is reaffirmed, and even less so in the sciences, since the objective here is to create a new strategic design of human essence grounded in sustainability, especially oriented toward human sustainability.

> To write one's own essence is to recount it in its entirety, the good and the bad. I do so as memory recalls it and as it suits the construction or reconstruction of myself. (Machado de Assis)

From this perspective, regardless of grounding in any of the distinct philosophical and/or theological traditions intrinsic to the human being, the present work reflects on essence in an integral and transcendental manner—not by "doing more of the same," but always with the intention of proposing, naturally and freely, a presentation of human essence from the transcendental perspective of my own authorship as a human being, while acknowledging all my shortcomings and limitations. To this end, it presents strategic actions necessary for the undertaking of societies which, socially and culturally, continuously shape the human being and are simultaneously shaped by the market, often becoming unsustainable. Our challenge, however, lies in presenting alternatives guided by sustainability and innovation, capable of contributing to the transformation of human beings and societies into more sustainable and innovative ones.

It has long been recognized that the human being is, by nature, an agent of opinion formation and consequent actions directed toward life itself and the ecosystem, regardless of academic or professional background, but rather by virtue of one's essence and lived experience across diverse contexts and fields of action, including the fundamental need for coexistence and survival.

Aware of a love for life and for the global human ecosystem, I present here the human being as I understand him or her to exist within this society so greatly in need of our contributions. First, it is necessary to emphasize that the human being is love. Love is the purest source of human life. Love is what will increasingly enable us, within the knowledge society, to understand that we must prioritize our non-

negotiable principles and values in order to continue acting with "love in the heart to better guide the mind."

> That which is done out of love is always beyond good and evil. (Nietzsche)

Indeed, in essence, the human being needs love, for love is the principle of life and of its continuity. To live is, increasingly, to learn how to love in order to serve better. These conditions will undoubtedly enable us to "listen more with the heart," "think always with the heart," "act always with the heart," and "speak more with the heart" (Marujo, 2025). Without any doubt, it is this human alchemy that will allow us to redefine our own capacity to contribute to making human beings better for life and for its necessary and continuous evolution.

> When man learns to respect even the smallest being of Creation, whether animal or plant, no one will need to teach him to love his fellow man. (Albert Schweitzer)

The human being is indispensable to the improvement of the quality of human life and of the planet. The human being in his or her integrality and the environment in its totality become an indispensable "strategic unity" for human life and for the life of the planet. The human being is primordial and holds potential for rethinking our ways of living and coexisting in the constant and tireless struggle for our own survival. The true human being, when facing adversity, remains confident in relation to his or her objectives—especially principles and values—for

while we are guided by principles, we do not have a price; we have values. It is our humanizing values that sustain our belief and our tireless struggle for better days.

Human beings and humanity: humanity is the environment in which human beings live in their fullness. “All men are useful to humanity simply by the fact that they exist” (Rousseau). This very existence may be the means capable of promoting a more dignified and humane development, one that continually enables action that is just, ethical, and socially responsible.

Humanity, as an environmental system, fosters interaction among humans, non-humans, and the entire environment over time, always emphasizing the integration that this environment exerts on human activities and vice versa—an interaction that has nonetheless been impacting and weakening the global environment (Alves, 1986).

> True knowledge lies in accepting that we do not know all the truths of the world. Having the humility to recognize ignorance is a great act of wisdom. (Confucius)

Humanity, as a human system, enables us to express ourselves insofar as we possess distinct and uniquely human characteristics, whereby our capacity to feel and to behave makes us thinking beings capable of action; yet our actions must always be carried out for the benefit of others and of the shared environment.

> Human science in no way denies the existence of God. When I consider how many and how marvelous are the things that man understands, investigates, and manages to accomplish, I clearly recognize that the human spirit is the work of God, and the most remarkable of all. (Galileo Galilei)

Human beings must undoubtedly be treated irrespective of race, color, gender, religion, or limitations of any kind. They must always be treated as human beings, in ways that foster their personal, social, and professional prospects, which in turn must strengthen institutions for their continuous evolution—whether in the first sector (public), second sector (business), or third sector (NGOs, OSCIPs, and others)—with the additional aim of promoting the ongoing development of local and global societies.

There is no institutional sustainability without the presence of the human being. Undoubtedly, it is impossible to promote a sustainable culture without the capacity of the human being, as a professional, to sensitize and raise awareness among all collaborators regarding sustainability—its necessity and its importance. These are the conditions that enable collective engagement in actions and activities directed toward institutional development and sustainability.

It is the human being who possesses the faculty to think and interact humanely, thereby promoting the humanization of collaborators. Only the human being has the power to think and rethink in order to undertake responsible actions committed to others and to the organization, so as to remain responsive to market demands and to

contribute to societal development and sustainability. From the perspective of Human Sustainability, the human being requires an understanding of sustainability across its dimensions—political, social, economic, environmental, and cultural—as a feasible factor capable of providing comprehensive strategic conditions that contribute to the development of a meta-vision, fostering thought and action at all times grounded in sustainability; that is, the capacity to develop sustainable thinking in order to act sustainably.

In the face of such complexity, paraphrasing Plutarch: "Man cannot avoid making mistakes; it is through mistakes that men of good sense learn wisdom for the future." Therefore, let us dare without fear of error; we will surely find new paths.

Within this dimension, the human being addressed in this book is one who has the capacity to position himself or herself boldly before the most intense and varied challenges characteristic of the knowledge era, as well as before the necessary knowledge, skills, attitudes, values, and ethics that can be transformed into competencies, rendering the individual more resilient, proactive, and responsive. This is because the sustainable human being must have the power to think and act responsibly and with commitment to others, for the common good and for the global environment.

> Taking into account the conditions at hand and insofar as possible, nature always does things in the most beautiful and best way. (Aristotle)

Finally, it is reaffirmed that only human beings possess the capacity to unconditionally promote the necessary engagement with the emerging and strategic political, social, economic, environmental, and cultural issues that constitute the dimensions of sustainability and its entire organic and dynamic system shaping local and global environments. Thus, they become a potential force with the power to contribute to the continuous evolution of human beings, institutions, and societies in the pursuit of a transcendental humanity.


Sustainability

Sustainability

> Sustainability is the power to perceive the beauty of life through the world in its fullness, integrated into the global human ecosystem, as a way of undertaking—organically and dynamically—its dimensions—political, social, economic, environmental, and cultural—as a potential strategy capable of integrating actions grounded in empathy, efficacy, efficiency, effectiveness, and engagement, in an intense pursuit of actions and activities that may benefit local and global ecosystems, always with the purpose of making them more just, dignified, and better for everything and everyone (Marujo, 2025).

Sustainability is the human condition that enables us to experience and coexist, in fullness, with and for others, as well as with and for the environment, always with the necessary responsibility and commitment to human life and to the planet, because only through sustainable and innovative (re)thinking and (re)acting can we contribute to the indispensable transformations of the human being and the integral environment.

Sustainability lies in our capacity to integrate—organically and dynamically—its dimensions—political, social, economic, environmental, and cultural—in an extremely strategic manner, through the appropriation of metacognition and metavision as driving factors of our innovative sustainable competencies, always in defense of the continuous improvement of the global human ecosystem.

In view of this subjective conceptual unveiling, which sought to present how sustainability is conceived precisely in order to rethink how it should be undertaken, the following sections highlight its trajectory and diverse propositions and, in particular, present provocations for its critical and creative redimensioning—fundamental conditions for its prospective development in contemporary times, marked by an increasingly troubling unsustainability.

> "I maintain that Truth is a pathless land. Man cannot come to it through any organization, through any creed (…) He has to find it through the mirror of relationship, through the understanding of the contents of his own mind, through observation." (Krishnamurti)

The most significant facts evidencing the entire "wave of sustainability" (Schumpeter, 1939, 2017) originated in the late 1960s with the Club of Rome, composed of international figures who reflected on problematizing issues related to politics, economics, and the environment. At that time, the publication of the report *The Limits to Growth* sparked extensive debate within the scientific community.

As a consequence, in 1972, in Stockholm, Sweden, the United Nations—amid international political upheavals surrounding the report—held the First United Nations Conference on the Human Environment, at which the social, economic, and environmental pillars were presented as necessary to achieve sustainable development; additionally, the United Nations Environment Programme (UNEP) was created. Years later, in 1987, the World Commission on Environment and

Development consolidated its work in the influential report *Our Common Future*, also known as the Brundtland Report. In this report, the expression "sustainable development" was coined and defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs and aspirations" (NFC, 1991).

In line with this trajectory, the need is underscored to reflect, after 53 years, on the limited effectiveness of sustainability actions based solely on the social, economic, and environmental pillars. Thus, a more comprehensive sustainability is advocated, grounded also in other bases as dimensions—political, social, economic, environmental, and cultural—understanding that such greater integration renders them more strategic for enhancing the development of the global human ecosystem.

> Sustainability is defined as a principle of a society that maintains the characteristics necessary for a socially just, environmentally balanced, and economically prosperous system over a long and indefinite period of time (WCED, 1987, p. 54).

In 1992, Rio de Janeiro hosted Eco-92 (the United Nations Conference on Environment and Development), at which the Earth Summit was held, generating important documents such as Agenda 21, the Rio Declaration, and the United Nations Framework Convention on Climate Change.

In 1997, the Earth Summit met again at the UN headquarters in New York to discuss issues such as global warming and sustainable

development. That same year, the Third United Nations Conference on Climate Change was held in Kyoto, establishing the Kyoto Protocol. In 2000, the UN approved the Millennium Development Goals (MDGs) and launched the Global Compact as a voluntary initiative aimed at encouraging companies to align their strategies and operations with ten universal principles in the areas of human rights, labor, environment, and anti-corruption, as well as to develop actions that contribute to addressing societal challenges.

In 2012, the United Nations Conference on the Environment, known as Rio+20, was held, highlighting sustainability, the green economy, and global environmental governance, and stimulating concrete actions toward sustainable development through international commitment and cooperation.

In 2015, at its Conference on Sustainable Development, the UN approved the 2030 Agenda and the Sustainable Development Goals (SDGs). There are 17 goals and 169 targets aimed at implementing diverse local and global actions to strengthen planetary sustainability.

It is necessary to emphasize the importance of these SDGs while also acknowledging their fragility in achieving the 2030 targets. The fragmentation of their actions may become one of the greatest factors of failure, as the SDGs must be understood and undertaken as an interdependent system that energizes actions and strategically drives their varied activities, always integrating—directly and indirectly—all SDGs.

Moreover, human beings must be at the center of all actions, because although the environment is important, the 2030 Agenda with

the SDGs was created for humans—who are an active and proactive part of this environment.

In 2022, Rio+30 – Sustainable Idea aimed to promote reflections on the results achieved for society through sustainable actions and activities and, in particular, on how these actions have aligned—and can further align—with technologies and innovations as alternatives to address current challenges typical of the knowledge society.

In 2024, during the G20 Meeting held in Rio de Janeiro, Brazil, it was also possible to observe how issues of sustainability and innovation—always linked to the aforementioned dimensions—permeate all agendas as predominant factors for the development of the global human ecosystem.

In 2025, COP 30, held in Belém do Pará, Brazil (the 2025 United Nations Climate Change Conference), focused on climate change, presented alarming information about the planet's climate and, at the same time, underscored the need to promote more sustainable and innovative actions that respect the planet.

> "The essence of knowledge is to apply it, once it is possessed." (Confucius)

Nevertheless, another proposition for reflection is warranted. The planet is human, as a system, because the ecosystem is what moves us and enables us to live, even amid all anthropic actions; however, it is these same humans who must always be at the center of all actions, in favor of the most diverse issues capable of contributing to controlling

activities that affect the climate and the global human ecosystem. With regard to understanding the expressiveness of sustainability and its dimensions—political, social, economic, environmental, and cultural—it is expected to demonstrate how the integration of these sources aims to foster better reflection for redesigning a better society for everything and everyone.

Regarding socio-environmental issues, it is noteworthy that most achievements, albeit delayed, have resulted from intense environmental pressures worldwide and from the institutionalization of global programs and policies in favor of environmental preservation and social development, which are inherently human.

From this perspective, the intention is to contribute to the development of a culture capable of fostering new ways of rethinking in order to act more responsibly, sustainably, and innovatively toward the environment, which has suffered from a progressive and uncontrollable socio-environmental crisis (Sachs, 2000; Mariotti, 2007).

> Sustainability must become our capacity to be, to be present in, and to experience the world and for the world, through its dimensions—political, social, economic, environmental, and cultural—necessarily and simultaneously, seeking to promote socio-environmental responsibility, which is essential to our dignity, in favor of a more just and better society for all (Marujo, 2021, p. 12).

The dimensions of sustainability (political, social, economic, environmental, and cultural), along with their specificities and scope, are presented below:

Political Sustainability: Demonstrates how political issues are necessary and become a predominant factor in undertaking a more prospective human and socio-environmental life. Politics, as a dimension, is the most strategic area and provider of well-being, justice, and a culture guided by sustainability and innovation. At the global level, sustainability-based policies institutionalized by the UN through its agencies drive and redirect movements toward a better world, with dignity, equity, and justice for all.

Social Sustainability: Presents the social dimension as a source of power for the sustainable development of everyday contexts—personal, social, professional, and institutional. The social dimension is indispensable for re-dimensioning human life in society. It has a centralizing essence that favors human development in its entirety and generally constitutes the space of causes, effects, and facts that confer dignity upon human and socio-environmental life.

Economic Sustainability: Presents the economy as strategic planning and an indispensable factor for development. The capacity to balance economies and finances becomes a primary variable for rethinking progress and its continuous performance. Economics is the science that deals with the processes of production, distribution, accumulation, and consumption of material goods; consequently, through it societies obtain the best information for decision-making in local and global markets.

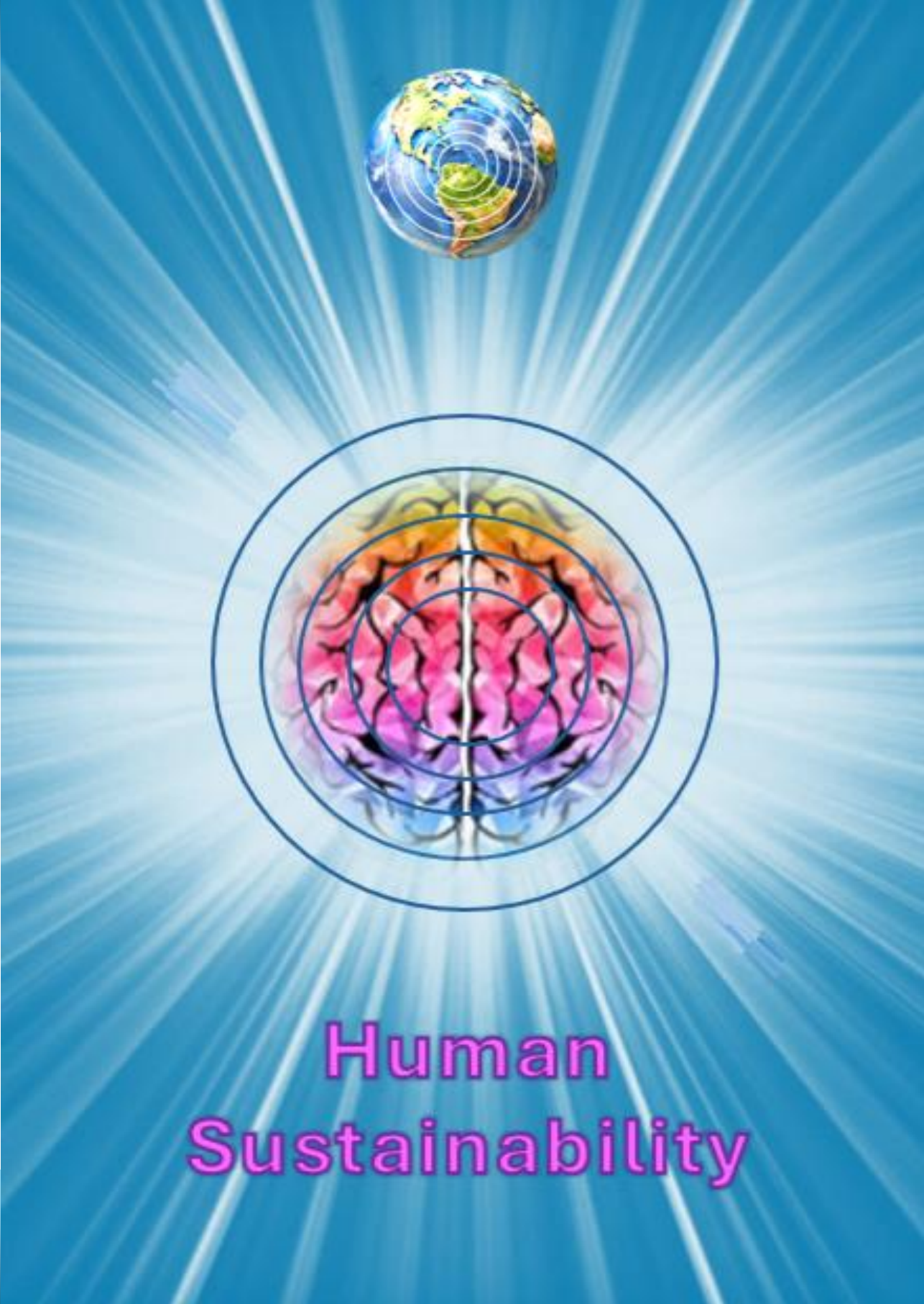
Environmental Sustainability: Presents human beings as an indispensable part of the environment, thus highlighting their active role and increasing their responsibility to deal carefully with diverse local and global environments. Accordingly, "thinking globally and acting locally" (NFC, p. 28) becomes a necessity for sustainable development. Such thinking must be grounded in a cause committed to a globalizing perspective capable of continuously reorienting our ways of thinking and acting in the same direction. The environmental factor is guiding and globalizing, as it has the potential to promote dimensional integration, forming more organic, cooperative, and co-responsible contexts that provide development and conditions for survival for the human species and the planet.

Cultural Sustainability: Presents culture as a determinant for human and societal development. Since the dawn of humanity, culture has been recognized as a determining source of development. In this context, culture encompasses education in all its forms—formal (at all levels), non-formal, and informal—and becomes a relevant differentiator for fostering commitment to socio-environmental sustainability.

Reaffirming the relevance of these dimensions, sustainability, as a progressive *modus vivendi*, is a necessary and indispensable imperative for productive living in contemporary times: a condition of being, presence, and experience in and for the world across all these interdependent dimensions, in order to meet present needs—here and now—and, above all, to ensure human and planetary survival (Marujo; Galdino, 2022).

Therefore, there is no doubt that actions in the field of sustainability, across these dimensions, exercised by everyone and for everyone, will undoubtedly contribute to the establishment of a sustainable, innovative culture that provides socio-environmental responsibility. Thus, sustainability must be vigorously cultivated in both heart and mind, especially because it is not merely a matter of necessity, but a fundamental issue for the survival of all and everything.

Finally, it is corroborated that sustainability is a fundamental human component guiding our thoughts and consequent actions, which—when integrated with innovation—becomes an even stronger driving force capable of promoting significant changes for human evolution and for the global human ecosystem.


Human
Sustainability

Human Sustainability

> Our ability to achieve unity in diversity will be the beauty and the test of our civilization. (Gandhi)

Human Sustainability presents itself as a strategic ally, capable of contributing to "the changes we wish for the world," particularly because such changes are necessary for the continuous improvement of the human being and of the complex contemporary system, which has become unsustainable.

Dealing with today's society—or, more precisely, with the complex socio-environmental system marked by numerous fragilities and uncertainties—constitutes one of the greatest challenges of contemporaneity. As human beings, it is imperative to confront decisively this troubling situation that has been weakening humanity itself and degrading the global ecosystem.

It should be noted that the concept of Human Sustainability was created in 2022 by Marcelo Pereira Marujo, on the occasion of the publication of the book *Sustainability*, in celebration of the 50th anniversary of the institutionalization of global sustainability actions, especially with the objective of combating the alarming environmental devastation whose initial milestone dates back to the United Nations Conference on the Human Environment, held in 1972.

The First United Nations Conference on the Human Environment, held in 1972 in Stockholm, Sweden, constituted the official landmark that initiated a broad process aimed at containing environmental

problems and creating alternatives to promote development—not only economic, but also environmental and social.

It was at this conference that the "social, economic, and environmental" dimensions were established as conditions that needed to be addressed in order to foster sustainable development. These dimensions were also the object of my critiques—not because of their importance, but because of their limitations—since social, economic, and environmental factors alone are insufficient to strategically promote development, particularly because they require the incorporation of political and cultural dimensions for their effective advancement.

Consequently, in 2022, after 50 years of largely ineffective actions toward the sustainability of local and global societies, it is argued that the true formula for advancing socio-environmental development—through strategies capable of protecting the global ecosystem—lies in human sustainability, for only human beings possess the conditions necessary to contribute effectively to their own survival and to that of the planet (Marujo, 2022).

The definition of Human Sustainability proposed by Marujo (2022) necessarily places the human being at the center of the capacity to foresee and provide all possible actions, in order to pursue alternatives aimed at promoting a sustainability grounded in socio-environmental responsibility—so essential for addressing human and environmental problems in their entirety.

> Human Sustainability is our natural capacity to be human: to think and act based on love for life, undertaking actions harmoniously, in full alignment with the global environment, to think locally while integrating the necessary and complex contemporary conditions—political, social, economic, environmental, and cultural—with the constant objective of promoting integral human development in favor of human sustainability itself, precisely because it holds the power to contribute effectively to a fairer, more dignified, and better global ecosystem for all (Marujo, 2022, p. 15).

Market-oriented society has become unsustainable, as evidenced by the degrading and inefficient conditions of policies implemented in the absence of global governance oriented toward the common good. Such conditions have been highlighted in summits among major powers that refuse to relinquish profit at any cost, rendering the global environment, as a system, increasingly fragile and unsustainable.

It is considered that only human beings will be able to remain inclined to continuously struggle in the face of challenges imposed on citizens, companies, markets, and societies in the pursuit of sustainability, thus becoming the very agents of true sustainability: human sustainability. Indeed, only human beings are capable of remaining resilient and responsive to constant challenges, devising strategies that generate benefits for society as a whole.

There is no institutional sustainability without the presence of human beings; undoubtedly, it is impossible to promote a sustainable culture without the human capacity for sensitivity and awareness,

enabling all collaborators to understand sustainability, its necessity, and its importance—particularly because it is a matter of survival. These circumstances make it possible for everyone to engage in actions and activities aimed at institutional development and sustainability.

It is the human being who possesses the faculty to think, act, and interact humanely, thereby humanizing collaborators. Thinking guides action—thought and action—and thus thinking sustainably becomes fundamental to acting sustainably. Only we, as human beings, possess the power to think and rethink in order to undertake responsible actions committed to others and to institutions, enabling them to remain responsive to market demands and to contribute to the development and sustainability of societies.

Human feelings, principles, and values are indispensable to human sustainability. Paraphrasing Plato—"love is the search for the whole"—and undoubtedly, understanding this whole—the global human ecosystem—is believed to be the foundation capable of making a difference in thought and consequent action. It is hoped that this understanding will ground the various forecasts and provisions necessary for strategies, especially in addressing the immeasurable needs of the knowledge society in defense of our ecosystem. After all, "nothing resists goodness and love" (Leonardo Boff).

Indeed, grounded in the distinctly Brazilian motto of "peace and love," and in harmony with Saint-Exupéry's assertion that "one sees clearly only with the heart; what is essential is invisible to the eyes," human sustainability is conceived. Nothing evolves without love, and without peace there is no development. Therefore, it is proposed that we

increasingly "listen, think, act, and speak with the heart," while understanding that peace resides within us—inner peace. This synergy between love and peace has the power to make human beings better for others and for the planet.

> Love is eternal—its manifestation may change, but never its essence… Through love, we see things more calmly, and only with such calm can work be successful. (Van Gogh)

These requirements of human sustainability foster integral human development which, in its subjectivity, enables individuals to work more for the collective, as collective know-how becomes an exhortation of each individual in favor of the collective itself. Under these conditions, an innovative sustainable culture is developed—or rather, a learning organizational culture is gradually realized, democratically and participatively—so necessary to maintain organizations that are more humanized and simultaneously responsive to the novelties of the globalized world.

Likewise, our ability to observe and understand distinct contexts and their specificities facilitates a comprehensive understanding of others—their origins, needs, and human-environmental life cultures—so as to personalize our reflections and actions and propose entrepreneurial initiatives through global activities developed from local realities. Undoubtedly, this is our greatest challenge in promoting sustainability in its political, social, economic, environmental, and cultural dimensions, as well as the Sustainable Development Goals.

Human beings must remain steadfast in their principles, values, morality, ethics, and honesty in the relentless pursuit of continuous human and professional development, training, and qualification—especially to act transparently amid the frequent absence of governance, often to the detriment of human beings themselves and the common good.

This human and humanizing foundation is essential to the continuous enhancement of competency formation processes, guided by significant emerging variables necessary to make professionals more responsive and proactive in the face of intense demands, namely: understanding intelligences (multiple, emotional, and competitive) as allies in improving professional performance; strategic and methodological capacity for problem-solving—or rather, transforming problems into opportunities; and knowledge and skills in consulting and mentoring focused on sustainability and innovation for constant professional and institutional resizing, always respecting local specificities while thinking globally and vice versa (Lévy, 1999; Goleman, 1995; Gardner, 1994; 1995).

Sustainable socio-emotional competencies are innovative propositions that, within the knowledge society, generate progressive integration, organicity, and dynamism between the aforementioned intelligences and socio-emotional skills, sustainability in its dimensions—political, social, economic, environmental, and cultural—and innovation, particularly innovation in thinking, vision, and progressive disruptive action.

These competencies should guide the strategic and methodological integration between scientific knowledge and common-sense knowledge—scientific experience and praxis—enabling us to contribute pragmatically to the promotion of innovative and feasible sustainable projects, capable of being implemented for the benefit of all, both locally and globally.

> The essence of knowledge lies in applying it once it is possessed. (Confucius)

From this perspective, human sustainability is believed to reside within the human being, in the potential to treat diversity, equity, and inclusion (DEI) as indispensable allies in undertaking actions and activities that are more responsible and committed to the sustainable and innovative development of local and global societies, which so urgently require more empathetic and engaged individuals in the tireless pursuit of a world where life can be lived with dignity.

Human sustainability emerges as a feasible contemporary alternative to foster strategies aimed at creating a new critical, creative, and reflective awareness in individuals—one that may demand actions contributing to socio-environmental improvement and benefiting present and future generations, always remembering that the future is the present; it is today; it is now.

> True sustainability resides within us, human beings. Therefore, it is human sustainability that materializes our potential capacity to think and

> act sustainably, especially in the face of constant challenges arising from the contemporary world—challenges that must be transformed into opportunities for professional, institutional, and socio-environmental improvement. This is the sustainability we need (Marujo, 2022, p. 16).

It is thus considered that sustainability must progressively arise from our human and humanizing actions, necessarily passing through our capacity to think in an innovative and sustainable manner, in order to act by promoting feasible actions within the same innovative-sustainable perspective—actions capable of supporting human decision-making and strengthening the essential socio-environmental responsibility (Marujo, 2022).

This revealed scenario allows us to understand that human sustainability has the incremental power to contribute to innovative sustainable thinking and action, through which progressive integral human formation—based on sustainability and innovation—can foster the development of better human beings, resilient, proactive, and learning organizations, more balanced, competitive, and fair markets, and, above all, the continuous improvement of the global human ecosystem.

It is believed that human beings enter the world with the purity of human life to experience and coexist with an environment increasingly altered by anthropic actions—that is, by human actions themselves—while nature, the environment, remains perfect in its essence and capacity for revitalization.

Regardless of the human actions that so severely weaken humanity itself and the planet, human potential remains undeniable.

Human perfection lies in the capacity to be an active and proactive part of the environment in its entirety, composing this global ecosystem as an integral component and remaining an organic and dynamic part of life in its fullness.

Sustainability is realized only through human action; therefore, it is indeed human. Human sustainability must, in its essence, be understood and promoted by human beings as social and professional actors, who must comprehend their full strategic potential to undertake sustainable actions and activities—that is, actions that are responsible and committed to others and to the global human ecosystem.

Regarding human essence, it is necessary to note that it also encompasses distinct expressive and fundamental characteristics that define the human being; thus, the human mind becomes a predominant factor, especially in the knowledge society, in which information and knowledge rapidly become obsolete and disposable.

On human essence, I bring into dialogue Saint Augustine, Doctor of the Church, who profoundly states: “In essence, we are equal; in differences, we respect one another.” These conditions highlight how much more empathetic and human we need to be in our essence, for true empathy consists in “seeing with the eyes of others, hearing with the ears of others, and feeling with the hearts of others.” This is undoubtedly our greatest challenge in living and coexisting guided by sustainability and progressing continuously within the knowledge society.

With regard to institutions, in their essence, most are born unsustainable if they do not receive, at their foundational stage, sustainability- and innovation-oriented conditions capable of

implementing and developing a sustainable culture. Consequently, they take longer to develop and achieve the stability, credibility, and visibility necessary to remain in the market.

In institutions, it has become increasingly common to encounter fragilities in project execution—whether institutional, local, or global. To address this, conditions are created to sustain their development, increasing strategic drivers that require professionals to be well prepared to understand how strategic their interventions must be (local/global/local) and to rethink them for the short, medium, and long term, even when dealing with managerial and/or operational conditions necessary to maintain projects in development.

> The most indispensable thing for a man is to recognize how he should use his own knowledge. (Plato)

In contemporaneity, human essence is increasingly represented and grounded in the capacity to "be, exist, and experience" the world in and for the world, particularly to benefit all. We must understand that prioritizing the collective fosters individual and subjective development, especially when we recognize that together we are always stronger and better.

Therefore, these human and institutional essences enable us to conclude that their conception and development become more consistent when guided and undertaken by expressive—sustainable and innovative—characteristics, which provide greater security and better human, institutional, and market-oriented reflective relationships.

In the face of a scenario filled with susceptibilities and uncertainties, it is crucial to recognize that we are human beings with many limitations. At the same time, we must understand that our limitations can become necessary indicators guiding our evolution—particularly by recognizing that these limitations can also turn into driving conditions capable of redefining our human and professional performance, making us better and enabling us to contribute more to the evolution of others, organizations, and societies. This condition represents a concrete factor of human sustainability's contribution, wherein human beings become the primary agents of their own evolution. In contemporaneity, self-evolution is considered a significant asset in achieving new accomplishments.

> Human evolution necessarily involves the pursuit of knowledge. (Sun Tzu)

Finally, it is considered that the contemporary society of "having," rather than "being," which is unsustainable, is increasingly in need of new strategies capable of fostering the improvement of human beings and organizations, making them learning-oriented and thus capable of strengthening markets and rendering them more competitive and non-exclusionary. Undoubtedly, only strategic actions guided by human sustainability possess the potential force to enable humanization, sustainability, and institutional innovation, as well as continuous evolution. Human sustainability therefore stands as a strong ally for the

ongoing improvement of sustainability and innovation within the global human ecosystem.

Sustainable Development Goals (SDGs)

Sustainable Development Goals (SDGs)

At the end of 2015, the United Nations adopted the global Sustainable Development Goals under the framework "Transforming Our World: the 2030 Agenda for Sustainable Development". The goals and their targets are intended to stimulate a wide range of actions in areas of crucial importance to humanity and to the planet: People, Planet, Prosperity, Peace, and Partnership.

People – We are determined to end poverty and hunger in all their forms and dimensions and to ensure that all human beings can fulfill their potential in dignity and equality, in a healthy environment.

Planet – We are determined to protect the planet from degradation, including through sustainable consumption and production, the sustainable management of its natural resources, and urgent action to combat climate change, so that it can meet the needs of present and future generations.

Prosperity – We are determined to ensure that all human beings can enjoy prosperous lives and achieve full personal fulfillment, and that economic, social, and technological progress occurs in harmony with nature.

Peace – We are determined to foster peaceful, just, and inclusive societies, free from fear and violence. There can be no sustainable development without peace, and no peace without sustainable development.

Partnership – We are determined to mobilize the means required to implement this Agenda through a revitalized Global Partnership for

Sustainable Development, based on a strengthened spirit of global solidarity, with particular emphasis on the needs of the poorest and most vulnerable, and with the participation of all countries, all stakeholders, and all people.

The 2030 Agenda is fundamental because it was designed to provide a highly comprehensive global framework for promoting development that is more sustainable, just, and dignified. It comprises 17 Sustainable Development Goals (SDGs) and 169 targets with distinct specificities, capable of enhancing improvements in both local and global environments.

The 17 Sustainable Development Goals and their 169 targets must be viewed as indivisible and should guide actions directed toward areas essential to humanity and the planet; nevertheless, they need to advance further, as they are not progressing in accordance with their established targets.

However, these Sustainable Development Goals must be understood as a complex, interdependent, organic, and dynamic system, capable of progressively strengthening all the goals. Therefore, under no circumstances should the goals be addressed in isolation from one another—whether such integration is direct or indirect—but rather must always be pursued in a fully integrated manner.

> When it is obvious that the goals cannot be achieved, do not adjust the goals; adjust the steps of action. (Confucius)

The Sustainable Development Goals (SDGs) and their relevant targets for pursuing the vital evolution of representative areas essential to the development of the global human ecosystem (United Nations, 2025):

SDG 1 – No Poverty – End poverty in all its forms everywhere
1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than US$1.90 a day.
1.2 By 2030, reduce at least by half the proportion of men, women, and children of all ages living in poverty in all its dimensions, according to national definitions.
1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable.
1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technologies, and financial services, including microfinance.
1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related

extreme events and other economic, social, and environmental shocks and disasters.
1.a Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions.
1.b Create sound policy frameworks at the national, regional, and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions.

SDG 2 – Zero Hunger and Sustainable Agriculture – End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious, and sufficient food all year round.
2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under five years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women, and older persons.
2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, Indigenous peoples, family farmers, pastoralists, and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets, and opportunities for value addition and non-farm employment.
2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, help maintain ecosystems, strengthen capacity for adaptation to climate change, extreme weather, drought, flooding, and other disasters, and progressively improve land and soil quality.
2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants, farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional, and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of

genetic resources and associated traditional knowledge, as internationally agreed.
2.a Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development, and plant and livestock gene banks, to enhance agricultural productive capacity in developing countries, in particular least developed countries.
2.b Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round.
2.c Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility.

SDG 3 – Good Health and Well-being – Ensure healthy lives and promote well-being for all at all ages
3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births.
3.2 By 2030, end preventable deaths of newborns and children under five years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-five mortality to at least as low as 25 per 1,000 live births.
3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases, and combat hepatitis, water-borne diseases, and other communicable diseases.
3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment, and promote mental health and well-being.
3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol.
3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents.
3.7 By 2030, ensure universal access to sexual and reproductive health-care services, including family planning, information, and education, and the integration of reproductive health into national strategies and

programmes.
3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all.
3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination.
3.a Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate.
3.b Support the research and development of vaccines and medicines for communicable and non-communicable diseases that primarily affect developing countries; provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration, which affirms the right of developing countries to fully utilize the provisions of the TRIPS Agreement on flexibilities to protect public health and, in particular, to provide access to medicines for all.
3.c Substantially increase health financing and the recruitment, development, training, and retention of the health workforce in developing countries, especially in least developed countries and small island developing States.
3.d Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction, and management of national and global health risks.

SDG 4 – Quality Education – Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
4.1 By 2030, ensure that all girls and boys complete free, equitable, and quality primary and secondary education leading to relevant and effective learning outcomes.
4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care, and pre-primary education so that they are ready for primary education.
4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university.
4.4 By 2030, substantially increase the number of youth and adults who

have relevant skills, including technical and vocational skills, for employment, decent work, and entrepreneurship.
4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, Indigenous peoples, and children in vulnerable situations.
4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy.
4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and of culture's contribution to sustainable development.
4.a Build and upgrade education facilities that are child-, disability-, and gender-sensitive and provide safe, non-violent, inclusive, and effective learning environments for all.
4.b By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States, and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering, and scientific programmes, in developed countries and other developing countries.
4.c By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States.

SDG 5 – Gender Equality – Achieve gender equality and empower all women and girls
5.1 End all forms of discrimination against all women and girls everywhere.
5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation.
5.3 Eliminate all harmful practices, such as child, early, and forced marriage and female genital mutilation.

5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure, and social protection policies, and the promotion of shared responsibility within the household and the family, as nationally appropriate.
5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic, and public life.
5.6 Ensure universal access to sexual and reproductive health and reproductive rights, as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences.
5.a Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance, and natural resources, in accordance with national laws.
5.b Enhance the use of enabling technologies, in particular information and communications technology, to promote the empowerment of women.
5.c Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels.

SDG 6 – Clean Water and Sanitation – Ensure availability and sustainable management of water and sanitation for all
6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all.
6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.
6.3 By 2030, improve water quality by reducing pollution, eliminating dumping, and minimizing the release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and substantially increasing recycling and safe reuse globally.
6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity, and substantially reduce the number of people suffering from water scarcity.

6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation, as appropriate.
6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers, and lakes.
6.a By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water-use efficiency, wastewater treatment, recycling, and reuse technologies.
6.b Support and strengthen the participation of local communities in improving water and sanitation management.

SDG 7 – Affordable and Clean Energy – Ensure access to affordable, reliable, sustainable, and modern energy for all
7.1 By 2030, ensure universal access to affordable, reliable, and modern energy services.
7.2 By 2030, substantially increase the share of renewable energy in the global energy mix.
7.3 By 2030, double the global rate of improvement in energy efficiency.
7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technologies, including renewable energy, energy efficiency, and advanced and cleaner fossil-fuel technologies, and promote investment in energy infrastructure and clean energy technologies.
7.b By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and landlocked developing countries, in accordance with their respective programmes of support.

SDG 8 – Decent Work and Economic Growth
Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all
8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product (GDP) growth per annum in the least developed countries.
8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high value-added and labour-intensive sectors.

8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services.
8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the Ten-Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead.
8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.
8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training.
8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking, and secure the prohibition and elimination of the worst forms of child labour, including the recruitment and use of child soldiers, and by 2025 end child labour in all its forms.
8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment.
8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products.
8.10 Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all.
8.a Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-Related Technical Assistance to Least Developed Countries.
8.b By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization (ILO).

SDG 9 – Industry, Innovation and Infrastructure
Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation

9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.

9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and GDP, in line with national circumstances, and double its share in least developed countries.

9.3 Increase the access of small-scale industrial and other enterprises, particularly in developing countries, to financial services, including affordable credit, and their integration into value chains and markets.

9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.

9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per million people and public and private R&D spending.

9.a Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States.

9.b Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities.

9.c Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020.

SDG 10 – Reduced Inequalities
Reduce inequality within and among countries

10.1 By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average.

10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.

10.3 Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard.

10.4 Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality.

10.5 Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations.

10.6 Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions in order to deliver more effective, credible, accountable and legitimate institutions.

10.7 Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies.

10.a Implement the principle of special and differential treatment for developing countries, in particular least developed countries, in accordance with World Trade Organization (WTO) agreements.

10.b Encourage official development assistance and financial flows, including foreign direct investment, to States where the need is greatest, in particular least developed countries, African countries, small island developing States and landlocked developing countries, in accordance with their national plans and programmes.

10.c By 2030, reduce to less than 3 per cent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher han 5 per cent.

SDG 11 – Sustainable Cities and Communities
Make cities and human settlements inclusive, safe, resilient and sustainable.

11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums.

11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.

11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries.

11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage.

11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global GDP caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations.

11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.

11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities.

11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning.

11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels.

11.c Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials.

SDG 12 – Responsible Consumption and Production
Ensure sustainable consumption and production patterns

12.1 Implement the Ten-Year Framework of Programmes on Sustainable Consumption and Production, with all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries.

12.2 By 2030, achieve the sustainable management and efficient use of natural resources.

12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.

12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle.

12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities.

12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.

12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production.

12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products.

12.c Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on

their development in a manner that protects the poor and the affected communities.

SDG 13 – Climate Action
Take urgent action to combat climate change and its impacts
13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.
13.2 Integrate climate change measures into national policies, strategies and planning.
13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.
13.a Implement the commitment undertaken by developed-country Parties to the United Nations Framework Convention on Climate Change (UNFCCC) to mobilize jointly USD 100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation, and fully operationalize the Green Climate Fund through its capitalization as soon as possible.
13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries, including focusing on women, youth and local and marginalized communities.
(*) Recognizing that the United Nations Framework Convention on Climate Change (UNFCCC) is the primary international, intergovernmental forum for negotiating the global response to climate change.

SDG 14 – Life Below Water
Conserve and sustainably use the oceans, seas and marine resources for sustainable development
14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.
14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.

14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels.
14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices, and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics.
14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information.
14.6 By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing, and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation.
14.7 By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism.
14.a Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries.
14.b Provide access for small-scale artisanal fishers to marine resources and markets.
14.c Ensure the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea (UNCLOS), which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of *The Future We Want*.

SDG 15 – Life on Land

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.

15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.

15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world.

15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development.

15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species.

15.6 Ensure fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources.

15.7 Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products.

15.8 By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate priority species.

15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts.

15.a Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems.

15.b Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation.

15.c Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities.

SDG 16 – Peace, Justice and Strong Institutions
Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
16.1 Significantly reduce all forms of violence and related death rates everywhere.
16.2 End abuse, exploitation, trafficking and all forms of violence against and torture of children.
16.3 Promote the rule of law at the national and international levels and ensure equal access to justice for all.
16.4 By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime.
16.5 Substantially reduce corruption and bribery in all their forms.
16.6 Develop effective, accountable and transparent institutions at all levels.
16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels.
16.8 Broaden and strengthen the participation of developing countries in the institutions of global governance.
16.9 By 2030, provide legal identity for all, including birth registration.
16.10 Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements.
16.a Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime.
16.b Promote and enforce non-discriminatory laws and policies for sustainable development.

SDG 17 – Partnerships for the Goals
Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Finance

17.1 Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection.

7.2 Developed countries to implement fully their official development assistance (ODA) commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of gross national income (GNI) for ODA to developing countries and 0.15 to 0.20 per cent of GNI to least developed countries.

17.3 Mobilize additional financial resources for developing countries from multiple sources.

17.4 Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress.

17.5 Adopt and implement investment promotion regimes for least developed countries.

Technology

17.6 Enhance North–South, South–South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge-sharing on mutually agreed terms, including through improved coordination among existing mechanisms, particularly at the United Nations level, and through a global technology facilitation mechanism.

17.7 Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed.

17.8 Fully operationalize the Technology Bank and the science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technologies, in particular information and communications technology.

Capacity-building

17.9 Enhance international support for implementing effective and

targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North–South, South–South and triangular cooperation.

Trade

17.10 Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda.

17.11 Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020.

17.12 Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with WTO decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access.

Systemic issues – Policy and institutional coherence

17.13 Enhance global macroeconomic stability, including through policy coordination and policy coherence.

17.14 Enhance policy coherence for sustainable development.

17.15 Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development.

Multi-stakeholder partnerships.

17.16 Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries.

17.17 Encourage and promote effective public, public–private and civil society partnerships, building on the experience and resourcing strategies of partnerships.

Data, monitoring and accountability

17.18 By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts.

17.19 By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement GDP, and support statistical capacity-building in developing countries.

The magnitude of the Sustainable Development Goals (SDGs) for human and ecosystemic evolution is evident. They are undoubtedly fundamental for progressive and strategic thinking and action in the short term—now—as well as in the medium and long terms, insofar as they comprise propositions that benefit present generations while ensuring equivalent conditions for future generations.

Without question, the importance of the 2030 Agenda and its SDGs lies in their capacity to guide diverse actions toward global advancement, such as the eradication of poverty, the protection of the planet, and the assurance of peace and prosperity for all, as well as in the promotion of an integrated vision capable of connecting the economic, social, and environmental pillars, which, in isolation, are insufficient and have hindered innovative sustainable endeavors across various actions and activities.

Recent reports themselves signal the fragility of progress in SDG-related actions, thus indicating the need for stronger governance for their implementation; consequently, the political and cultural dimensions (culture as education and education as culture) are fundamental to the incremental re-scaling of all these SDGs as a dynamic organic system.

In this direction, intensifying innovative sustainable drivers becomes paramount, grounded in the necessary and simultaneous dimensional action—political, social, economic, environmental, and cultural—with the objective of enhancing the capacity to strategically anticipate and provide continuous improvements in local governance, while always integrating and tailoring intrinsic activities to the SDGs, in respect of local particularities, yet consistently connected to the global context.

SDG drivers, guided by sustainability (as a dimension) and innovation (as disruption), thus become indispensable conditions for continually redirecting and re-scaling all actions and/or activities toward their development and toward the strengthening of essential local and global governance; however, all these incremental strategies must reposition the human being at the center of all actions, which must be increasingly integrated.

In light of the foregoing, it is evident that the Sustainable Development Goals (SDGs) stand as one of the most significant global policies for strengthening local societies, particularly insofar as they envision the promotion of development across multiple segments essential to the evolution of global society.

Therefore, it is necessary to understand the importance of innovative sustainable governance guided by the human essence, for this is precisely what has been lacking: rescuing the human being and placing them once again at the center of all strategies, in order to ceaselessly pursue human evolution and the evolution of the global human ecosystem.

International Decade of Science for Sustainable Development (2024-2033)

International Decade of Science for Sustainable Development (2024–2033)

> There is only one time when it is essential to awaken. That time is now. (Buddha)

The dedication of a decade to highlight issues as indispensable as science is, unquestionably, a vital condition for human and planetary evolution—especially when, during this decade, science is integrated with the emerging contemporary theme of sustainable development. It is certainly an "innovative sustainable strategic unity"—Science for Sustainable Development—of great importance for reflecting on the kind of society we desire for a dignified way of living and coexisting with everything and everyone.

> The International Decade of Science for Sustainable Development is a global movement to unlock this potential. Led by UNESCO, it promotes science as a common good, fostering innovation, inclusion, and cross-border collaboration. Together, we are building a more just, resilient, and informed future for people and the planet. (UNESCO-IDSSD, 2025)

This expressive initiative is extremely compelling, as it seeks to impact societies through science in several areas of critical importance to our survival, such as education, health, biodiversity, and climate, among others.

The future is the present, and the present is today—here and now. This condition should redirect our scientific journey, always integrated with popular knowledge. Only through such synergy will we be able to confront the systemic and complex challenges that increasingly beset us while simultaneously signaling the magnitude of the problems, which are our own; therefore, we must assume and understand that this responsibility belongs to us.

Before initiating provocations for reflection on the International Decade of Science for Sustainable Development, it is pertinent to revisit the Decade of Education for Sustainable Development (2005–2014), especially to demonstrate that meaningful proposals are created but often lack more robust strategies for their implementation and continuity.

At that time, the United Nations' commendable initiative, led by UNESCO, in considering education as the fundamental basis for achieving sustainable development, was laudable. Its objective was to promote changes in people's ways of thinking and acting by providing information, knowledge, skills, and values to address global challenges.

Unfortunately, little progress was made in this direction during that period. It is argued that the absence of innovative sustainable governance hindered certain actions, which may have weakened the successful continuity and effective consolidation of a culture of sustainability in education.

With the International Decade of Science for Sustainable Development, the aim is, above all, to disseminate—by associating science with sustainable development—a sustainable and innovative science. Undoubtedly, there is empowerment in this combination of

science and sustainability, or rather, a vigorous alchemy capable of propelling human beings toward the undertaking of an innovative sustainable culture, which may become a considerable driving force to confront the adversities of the contemporary world (IDSSD, 2024).

Within this dimension, science is regarded as an instrument of transformation and power, as it becomes an essential condition for addressing challenges across the most diverse areas of knowledge that undermine development at both local and global levels.

The sciences foster scientific research, which must also appropriate the knowledge of Indigenous peoples, Quilombola communities, and other traditional groups who often live on the peripheries yet possess competencies to deal more assertively with local specificities. Such competencies are fundamental for identifying feasible alternatives that can be transformed into drivers for expanding actions aimed at the continuous advancement of the Sustainable Development Goals (SDGs).

Undeniably, science is necessary to strengthen responses to a wide range of local and global challenges—political, social, economic, environmental, and cultural—since it significantly enhances the levels of efficacy, efficiency, and effectiveness of actions in the face of diverse problems. Therefore, there is no doubt that science is indispensable.

Institutionally, this decade signals the need for more robust scientific systems, as well as the adoption of long-term planning capable of supporting the Sustainable Development Goals and addressing other environmental problems.

Nevertheless, this also calls for reflection: what is required are immediate actions, conceived for the medium and long terms as well; equally necessary is the presence of professionals endowed with innovative sustainable competencies to engage with governance structures that ensure actions and activities remain in constant evolution. This, indeed, should be a requirement for the decade and for its continuity.

It is of utmost importance that diversity, equity, and inclusion be understood by science and scientists as ways of aggregating multiple realities and diverse experiences, considering this approach—one that fosters sustainability and innovation—as a strategic factor in addressing the most varied and complex human and global human ecosystem issues. Another essential factor concerns how scientific data are treated and disseminated within the knowledge society in a more accessible and transparent manner through the practice of open science. A dynamic aggregation of diverse stakeholders is required, as well as the engagement of the sectors: the first sector—government; the second sector—private enterprises; and the third sector—non-governmental organizations. This is especially necessary to recalibrate the integration of scientific knowledge with pragmatic knowledge, always in favor of collective benefit, albeit within an eminently polarized and exclusionary society, particularly in economic, social, and cultural dimensions.

Moreover, encouraging participation by the productive and non-governmental sectors in investing in scientific knowledge is significant, particularly to enhance their professional and productive capacities in order to achieve greater competitive advantages. Such investments are

also understood to foster improved governance and strengthen credibility and visibility in local and global markets.

The decade under consideration highlights the complexity of problem-solving as a relevant factor for improving scientific and socio-environmental actions (Veiga, 2007). From this perspective, it reinforces the importance of understanding problems through a systemic and complex lens, in which metacognition and metavisualization underpin all planning and signal possible alternatives. At the same time, it is acknowledged that interventions are increasingly comprehensive and intrinsic to inter-, trans-, and multidisciplinary issues—conditions that require the management and strategic action of multidisciplinary teams to advance the construction of solutions to problems.

From the standpoint of human beings and the improvement of quality of life, this decade underscores the importance of promoting science for everything and for everyone—a science capable of ensuring that all have space, duties, and rights, since benefits, likewise, must be collective.

In the knowledge society, the sharing of information and knowledge without geographical boundaries becomes a powerful factor capable of fostering local action in both the Global North and the Global South. This transboundary nature of science must, opportunely, become a strategic condition for advancing the construction of a global education—or rather, an Innovative Sustainable Education—capable of promoting the evolution of all people in any context, regardless of political, social, economic, environmental, or cultural conditions. Education must become global, thus promoting a true "Quality Education" (SDG 4) for all.

The contribution of the Decade of Science is understood as a driving source of scientific knowledge without borders, favoring the integration of all stakeholders—citizens, policymakers, researchers, and Indigenous peoples—and demonstrating that, together, we are better. In this way, the sense of human belonging, responsibility, and commitment to sustainability and innovation is strengthened—conditions that are fundamental to the continuous promotion of the Sustainable Development Goals (SDGs) and socio-environmental responsibility, so necessary for human and ecosystemic evolution.

At this moment, reflections are proposed so that we may understand, once and for all, that human beings are essential to all strategic actions aimed at the progressive improvement of our ecosystem, which is human. To this end, human beings are our most important and precious asset and must, undoubtedly, always be at the center of all actions aimed at innovative sustainable development, necessarily oriented toward human well-being and the global human ecosystem.

In the face of the challenges of living in an unsustainable and constantly transforming contemporary society, science becomes a strategic ally in promoting actions capable of dealing objectively with successive changes in a more resilient, responsive, and proactive manner.

Finally, it is believed that the International Decade of Science for Sustainable Development will contribute significantly to the redesign of our future through effective actions in the present. For an innovative sustainable science that interrelates scientific knowledge with common-sense knowledge will undoubtedly enable the re-creation and subsequent

implementation of more responsible actions, committed to the continuous evolution of human beings and the global human ecosystem.

Human Sustainability & Artificial Intelligence

Human Sustainability & Artificial Intelligence

> "The true sign of intelligence is not knowledge, but imagination." (Einstein)

Human sustainability is essentially the realization of our potential as humans to respond and advance, both reactively and proactively, to the intense and complex demands of the global human ecosystem. Artificial Intelligence (AI) refers to the ability to perform tasks without human intervention, where technology develops activities with increasing perfection and, most notably, reshapes its own capabilities.

In this context, the synergy between human sustainability and artificial intelligence in contemporary society becomes a stimulus for enhancing our ongoing human and sustainable performance; thus, it fosters the integration of our various activities—whether personal, social, or professional—under conditions that promote greater effectiveness, efficiency, and impact. It is believed that these integrated actions will enable greater speed, contributing to institutional and organizational improvements, always aiming for local development to benefit both local and global societies.

In the knowledge society, human sustainability must strategically recognize the importance of artificial intelligence as a key ally for its constant development. From this perspective, human sustainability and artificial intelligence, the human being and the machine, human intelligence and machine intelligence are increasingly intertwined and present in our human activities within the globalized world.

After all, is the future in People or Technologies? It is essential to emphasize that the future is present, the present is today, and today is now; this is the same intensity as the multifaceted advancement of artificial intelligences in the diverse current activities.

In alignment with these revealing interrelations, I adopt dialectic and dialogical reasoning to reflect from a "global to rethink the local" perspective, aiming to strategically drive my propositions, provocations, and, undoubtedly, all uncertainties regarding this highly potent combination for development in the knowledge society.

> "There is nothing in our intelligence that has not passed through the senses." (Aristotle)

Human beings, with their human intelligence, have always carried out all procedures in consolidating various forms of intelligence. Therefore, human intelligence should prevail over all other types, although the relevance of these must be understood for the continued performance of humanity.

It is this human performance that necessitates the development of personal and institutional networks to enhance the human, social, and environmental systems, aiming at the sustainable and innovative exploitation of the global human ecosystem. Based on these conditions, human sustainability emphasizes the organic and dynamic integration of human intelligence and artificial intelligence as collaborators for improving human performance and local and global environments. This relationship becomes a vital call for the constant forecasting of our

relationships in a globalized, technological, and innovative market that is, unfortunately, unsustainable.

It is precisely to address the unsustainability of contemporary society, so concerning and unsettling, that weakens human and planetary life, that artificial intelligence is expected to present alternative contributions for mitigating, perhaps reversing, this worrying and degrading situation affecting all things. It is considered a matter of survival.

The importance of artificial intelligence as a facilitator of our capacity to undertake and decide in an eminently digital and borderless society is well known. Consequently, we need to find technological resources to steer toward artificial intelligence as a necessary part capable of contributing to the development of humanity, markets, and societies. However, humans must remain at the center, always being the primary beneficiaries of all processes, which are increasingly integrated, disruptive, and volatile.

The potential of artificial intelligence is unquestionable, as is its importance in the knowledge society. Therefore, under no circumstances will we treat artificial intelligence as something ordinary; it will not be regarded without due importance, considering its strategic potential to improve human, social, and professional development, which is fundamentally essential to sustainability and innovation in various institutions and societies.

The evolution of artificial intelligence (AI) began with information processing concepts, progressed to rule-based complex systems, and subsequently moved into machine learning and deep

learning. Currently, it is based on generative AI, natural language processing, and robotics, driven by advances in algorithms, hardware, and data.

In this dimension, artificial intelligence relies on a robust technological base for its consolidation and development, namely:

To support data, which constitute its primary product/process, learning systems that identify immeasurable amounts of data (Big Data) become indispensable. However, it should be noted that the data must be of high quality to improve information delivery.

Algorithms become logical and mathematical guides that enable all data processing, including learning from data and performing various tasks. Moreover, algorithms are responsible for determining how the system understands and solves problems and makes decisions.

Technological architecture refers to the hardware and software required to perform all data processing and execute the algorithms effectively. It concerns modern computational potential and strategic cloud computing architectures.

This systemic and complex technological architecture must align with human sustainability, precisely to anticipate and provide potential contributions to promoting sustainable and innovative AI (Capra, 2006; Morin, 2000, 2006, 2013).

> "Times are liquid because everything changes so quickly. Nothing is made to last, to be solid." (Bauman, 2004)

In an extremely liquid society (Bauman, 2004), susceptibilities and uncertainties expand at every moment, but so do the interests in artificial intelligences, particularly by institutions/organizations—public, private, and third sector—wanting to stay connected to impulsive modern business ecosystems and the most technological global markets.

In this sense, the connection between human sustainability and artificial intelligence is real and indispensable today, as it is essential to always be ready and responsive to new developments. This connectivity presents a significant challenge in the knowledge society, especially when considering that our humanizing capacity needs continuous resizing, just as our need to fully engage with artificial intelligences becomes a fundamental factor for maintaining a prospective and proactive approach to global demands.

These conditions highlight the need for flexibility in thinking to act responsibly regarding actions aimed at improving people and their diverse contexts, particularly since the expansion and interaction with constant novelties and uncertainties in modern markets and societies are indispensable.

Furthermore, in times of AI, it is essential to understand how ethics become a fundamental issue for humanization, even amid the disruptive innovations brought about by these artificial intelligences, which often prioritize markets driven by capital and reckless consumption.

Regarding ethics and the relationship between humans and technology—human sustainability and artificial intelligence—it is crucial to establish ethical bases and regulations:

Initially, it is noted that human ethics will guide AI ethics. Consequently, all analytical reflections on AI concerning ethical principles, especially regarding its responsible use for human benefit, are being globally discussed. However, these propositions advance more for the essence of humanity than for truly placing the human at the center of AI-related strategies.

Diversity, equity, and inclusion need to be ensured by AI systems to avoid reproducing or spreading prejudiced actions.

Credibility, reliability, and security must also guarantee the essential protection intrinsic to the functioning of all systems, in a transparent manner, ensuring the necessary trustworthiness.

Responsibility and privacy also become relevant issues, particularly for understanding how AI decisions are made and to define accountability when necessary. Moreover, privacy concerning personal data must be secured.

Indeed, principles, values, and ethics are human determinants that must always precede technology, especially given its potential for instant dissemination and its boundless reach.

Human and artificial intelligences need greater integration for the benefit of humankind. Humans must be at the center of all strategies aiming for sustainability and innovation. Before any advances in socio-environmental issues, humans should always be the primary beneficiaries.

Another important element is metacognition, which challenges the mind to dialogue with itself, allowing one to refute its own uncertainties regarding information and knowledge related to human

realities. This, in turn, provides the conditions to think reflectively about one's own thinking, facilitating continuous reflection on the subjective processes intrinsic to cognition—such as memory, insights, perceptions, and learning—which can stimulate human sustainability in a continuum.

The ethical, responsible, and committed human must be prepared to handle the aforementioned circumstances and create proposals capable of enhancing the quality of life for all, as it is understood that it is present actions—thought and action—that will contribute to future generations meeting their needs.

Indeed, it is through knowledge that these evolutions are continuously enhanced, as human knowledge is vital and becomes a crucial asset for dealing with artificial intelligence. Thus, it becomes a strategic ally capable of fostering competitive intelligence and, consequently, strengthening the competitive advantage increasingly essential for decision-making.

From another perspective, it is necessary to address the development of intelligences, particularly artificial intelligence, as a favorable condition for human development and the improvement of institutional ecosystems and the global human ecosystem.

Regarding human sustainability, the essence of being human needs to center more and more on humanity. The professional must integrate artificial intelligence into their actions to reshape their possibilities for contributing to ecosystems. Therefore, human sustainability must engage with artificial intelligence as an inexhaustible source capable of improving human life, survival, and that of the planet.

These conditions are believed to progressively provide the connection between people and institutions through feasible projects and strategic purposes for a more sustainable and innovative present.

It is affirmed that, even in times of generative AI, it is essential to prioritize the sustainable evolution of all human beings while simultaneously keeping up with significant advancements in technology and innovation. Generative AI is a reality that is here to stay and is constantly expanding, although it depends on humans for the continuous improvement of information quality and accuracy.

There is certainty that humans remain predominant in the development of intelligences. Artificial intelligences will not replace humans; however, there is no doubt that a human who does not see artificial intelligence as a necessary ally for their evolution and decision-making will be replaced by another human capable of dealing with these technologies.

Finally, it is essential to understand that AI becomes a significant resource for the development of competencies, especially to proactively meet the constant demands from the knowledge society.

Human Sustainability: Challenges & Trends

Human Sustainability: Challenges & Trends

> It is not crises that change the world, but rather our reaction to them. (Bauman)

Human sustainability materializes both as a challenge and as a trend. It constitutes a challenge insofar as it demonstrates that, by its very essence, the human being is sustainable and therefore must be repositioned at the strategic center of the promotion of innovations. It presents itself as a trend because the connection with the future—which is the present, here and now—enables the creation of alternative scenarios capable of mapping and, at times, anticipating events that may be leveraged as sustainable and innovative competitive advantages in the pursuit of the necessary improvements of the human being and the global human ecosystem.

From this perspective, and in alignment with Bauman, it is our capacities to think and act that guide the necessary reactions, which become fundamental for challenges to be understood as opportunities for evolution and for us to remain increasingly responsive to trends, even in the face of a globalized market marked by instability and uncertainty.

It is precisely within this dimension that human sustainability, in and of itself, becomes a considerable challenge and, at the same time, a necessary trend to maintain the connection with the global human ecosystem, in order to obtain information and knowledge that enable a rethinking of the continuous evolution of the human being, of others, of institutions, and of local and global societies.

However, the true challenge for human sustainability lies within the human being himself, insofar as it is necessary to understand one's importance for human and environmental development, as well as to develop the capacity to remain fully aligned with the dimensions of sustainability—political, social, economic, environmental, and cultural—with the aim of reflecting on systems and, precisely for this reason, advancing strategies that reposition the human being at the center of all propositions, in order to combat the degradation of the human being himself and of the global human ecosystem.

It is understood that, in a globalized world, the unsustainability of societies has continuously weakened the human being, diverse social contexts, and, above all, the environment in its most varied potentials.

Cultural change must be understood as a determining and also challenging factor for the evolution of citizens and for the consolidation of participatory democracy. These are the conditions that will foster the expansion of activities capable of promoting an innovative sustainable culture, which is indispensable for addressing the demands of contemporary society.

From the standpoint of modern knowledge, it becomes undeniable to consider artificial intelligence as an indispensable alternative for resizing our capacity to reflect and, consequently, to act more objectively, thereby accelerating the decision-making process across diverse social sectors.

Human capacity, grounded in innovative sustainable competencies oriented toward the promotion of knowledge transfer—always drawing upon both scientific and pragmatic knowledge—

certainly emerges as the challenge capable of fostering the gradual expansion of sustainable and innovative products and services, for the benefit of all stakeholders and those in need.

> I too want a return to nature. But this return does not mean going backward; rather, it means moving forward. (Nietzsche)

No less important, trends must also be understood as expressive variables for the entire construction of strategic planning, especially in an effort to anticipate possible inventions and future events, which continually exert significant impacts, particularly when they emerge without having been previously conceived.

The technological and knowledge-based society enables the monitoring of trends to be better controlled and understood, thereby converting information into data with the explicit purpose of strengthening a portfolio of actions for the implementation of strategies (Sen, 2010).

Moreover, it can be observed that innovation becomes crucial for the apprehension of information, especially within a connected society in which everything is made public. It is precisely this transparency that highlights how information can be transformed into competitive advantage, provided that it is selected and of high quality.

In times of artificial intelligence (AI), these situations must become relevant associations for our analyses and evaluations, particularly because they can be fundamental for better reflecting on

negotiations and for strategically benefiting individuals, private institutions/organizations, and governments.

From another perspective, metavision emerges as an important foundation, capable of fostering the resizing of our competencies in apprehending and processing diverse information and knowledge from multiple angles, enabling us to identify alternatives for confronting challenges and to deal proactively with new trends.

Another essential issue lies in maintaining a critical, creative, and reflective spirit, as well as applying a degree of boldness in recognizing oneself as a transformative agent, since these personal and professional skills will be fundamental for progressively monitoring trends and, whenever possible, transforming them into significant opportunities for personal, professional, and institutional strengthening.

Undoubtedly, human sustainability emerges as a human and humanizing condition, grounded in sustainability and innovation as primary determinants for reflecting on our capacity to be, to exist, and to experience the world and for the world. Consequently, it should ensure that our human protagonism, allied with technologies, is present in all local and global strategic policies—an indispensable imperative for development in contemporaneity.

Therefore, this powerful combination of sustainability and innovation becomes a decisive condition for innovative sustainability, such that resilience, responsiveness, and proactivity become elements that foster the promotion of diverse social and environmental contexts in which responsibility and commitment to the development and continuous improvement of the global human ecosystem prevail.

> Taking into account the conditions at its disposal and insofar as possible, it is nature that always makes things more beautiful and better. (Aristotle)

Human nature renders human sustainability unquestionable. Human essence is natural and essential. Our challenge lies in continually signaling to human beings themselves that we are essential to life, to human life, and to the global ecosystem. The prevailing trend henceforth is for this focus to become more intense and to necessarily place the human being at the center of all strategies, for their benefit and in favor of the global human ecosystem.

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The obvious is that which is never perceived until someone articulates it with simplicity. (Khalil Gibran)

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This book presents *Human Sustainability* as a strategic ally for the necessary undertaking of human beings and for the evolution of institutions, with the aim of promoting more responsible and committed development within local and global societies.

The concept of *Human Sustainability* was created by Marcelo Pereira Marujo in 2022, during the commemoration of the 50th anniversary of the institutionalization of global sustainable actions, particularly those aimed at combating environmental degradation, which began with the First United Nations Conference on the Human Environment in 1972.

After fifty years of largely ineffective actions toward the sustainability of local and global societies, it is argued that the true formula for socio-environmental development and for the improvement of the global ecosystem lies in *Human Sustainability* (Marujo, 2022).

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