



# HPTD-M for Public Management Sustainability: A Proposal for Brazil

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**T**his paper aims to study Brazilian public management through the HPTD-M theory (Holopraxis Transdisciplinary Management). The excess of analysis, bureaucracy, and rationality is a Brazilian bottleneck. The concept of transdisciplinarity is abbreviated in this article as TD. The HPTD-M approach is based on the principles of duality, i.e., interaction and integration of opposites, especially the analytical and synthetic methods, and four requirements, namely rationality, feasibility, reasonableness, and meaning. Complexity can be transformed into simplicity through deep studies and discussions with all actors involved. The methodology to achieve the four requirements comes from Jungian psychological functions: sensation, feeling, thinking, and intuition, respectively, which are translated into four skills or types of intelligence, namely empirical, emotional, rational, and intuitive. Our Findings involve dialectics as a sustainable duality required to improve the managerial aspects of the public organizations in Brazil: The dialogue between specialists and generalists, analytical and synthetic methods, academics and executives, technicians and managers, and techno-bureaucrats and politicians, through education and change in legislation. In this context, four major groups of disciplines: technoscience = technology + science; bureaucracy, which covers law and legislation; psychology, which includes the behavior of all actors in public administration and their relationship; and politics, which involves dialogue and complete information to subsidize higher instances decision, as opposed to political ideology or dogmatism. The HPTD-M applied to sustainable public management is simple, as a result of the sophistication of complexity through studies and discussions. In that sense, simplicity can be considered a requirement in public administration, owing to dialectic models for solving the complexity of human phenomena. These HPTD-M concepts can hopefully help other open systems of knowledge as well, such as in sciences, economics, law, psychology, and politics. New approaches for governance and internal sustainability could emerge in other countries with similar problems of bureaucracy, with direct implications for the quality of public expenditure.

**Keywords:** HPTD-M, transdisciplinarity, public management, sustainability, complexity.

\*This paper is the sole responsibility of its author, not necessarily reflecting the view of public institution.

## 1 Introduction

In this article, the concept of transdisciplinarity is abbreviated (TD), and HPTD-M is an abbreviation for the Holopraxis Transdisciplinary Management theory. Complexity is part of the HPTD-M nature. Sustainability has close connections with HPTD-M as well that involves balance, especially for public administration. In the Brazilian approach, holistic TD is the interaction and integration of opposites, i.e., between the specialists and generalists or the analytical and synthetic method. The main objective of HPTD-M, in our vision, is the union of multiple ways of understanding reality, not only through the intellectual view but also through other types of intelligence. This author's professional experience in engineering, business administration (with MBA), and public management have been corroborating the HPTD-M in praxis.

The main HPTD-M vision is derived from modern physics: At the start of the 20th century wave-particle duality was discovered both theoretically and empirically. It was established that everything has a particle (something concentrated) and wave (something expanded) character. Light is diverted by gravitational fields due to its particle character (i.e., mass, which is a feature of physical matter). However, the wave character in light is predominant. Thus, the wave-particle principle does not apply to mechanical phenomena, Newtonian classical physics, Cartesian paradigm, and Aristotelian logic.

In modern physics, pure rationality does not work, considering the duality and complementarity principle that provoke logical contradictions. Even in human phenomena, this dual character is intrinsic. A subject and object cannot be separated in an interaction, which implies that the observer interferes in the experiment. In praxis, scientific "exemption" does not exist; it belongs to rationalists, reductionists, and scientificists, who only understand mechanical phenomena.

Modern physics and Jungian psychology invite human phenomena comprehension. A holistic perspective of reality is the basis for the Brazilian holistic TD approach from Weil, Crema, and D'Ambrosio, mainly holopraxis (holistic practice). In our opinion, complexity is inherent to human phenomena, which cannot be reduced to mechanical phenomena (when there are few well-predicted variables).

The HPTD-M approach applied to sustainable public management is simple, as a result of the sophistication of complexity through studies and discussions. Simplicity can be considered a requirement in public administration, as a result of dialectic models for the complexity of human phenomena, based on the principles of duality, i.e., interaction and integration of opposites, especially the analytical and synthetic methods, and four troubleshooting requirements, namely rationality, feasibility, reasonableness, and meaning. This paper aims to study Brazilian public management through a HPTD-M view. The excessive presence of analytical method and bureaucratic rationality fails to consider the four archetypical elements translated into the four requirements mentioned above.

The methodology to achieve those requirements is borrowed from Jungian psychological functions, i.e., sensation, feeling, thinking, and intuition, respectively, which are translated into four skills or types of intelligence, namely empirical, emotional, rational, and intuitive. According to Weil, D'Ambrosio, and Crema's approach for holistic TD and open systems of knowledge, the four epistemic ways are related in the following context: technoscience (sensation + thinking), philosophy (thinking + intuition), tradition (intuition + feeling), and art (feeling + sensation).

The findings involve dialectics as a sustainable way to improve the managerial aspects of public organizations in Brazil, i.e., between the specialists and generalists or analytical and synthetic methods through education and change in legislation.

## 2 Theoretical Framework

HPTD-M can be seen initially through Nicolescu's theories, which include disciplinarity, multidisciplinarity, interdisciplinarity, and TD given the fertile complementarity between **disciplinarity and TD**. This complementarity, like in modern physics (wave-particle duality considering the properties of matter and radiation, respectively), is evidenced in Nicolescu's concept of Third included. [1]

Besides Nicolescu's viewpoint of duality, as a Ph.D. in physics with the idea of *Third Included*, this paper's theory is based on the Brazilian holistic TD developed by Weil, D'Ambrosio, and Crema [3]. In 1987, Weil and Crema founded UNIPAZ in Brazil, which is the "University of Peace", a private Brazilian foundation declared of public interest, connected to holistic transdisciplinarity education. D'Ambrosio, by his turn, a signatory of the 1986 Declaration of Venice, is an element of connection between Brazilian UNIPAZ and French CIRET, of which Nicolescu was the founder and still the *Président d'honneur du CIRET*, the International Center for Transdisciplinary Research.

Weil was a psychologist, university professor pioneer of transpersonal psychology in Brazil, human resources consultant, author of many books, and dean of UNIPAZ from 1987 to 2008 when he deceased. Weil has developed a TD model through a pyramid of four epistemic ways (technoscience, philosophy, tradition, and art) and three levels of conscience: waking, dream, and transpersonal. [3, 4]

Crema is an anthropologist, psychologist, and psychotherapist, creator of the Fifth Force in therapy, author of many books, and currently the dean of UNIPAZ and instructor of the *holistic basic training, a lato sensu* post-graduation course in UNIPAZ, Brasília, Brazil.

Finally, D'Ambrosio was a university professor of mathematics and history of science, who focused on didactics, especially a humanized face of math and education. Deceased in 2021.

In this paper, HPTD-M is a paradigm based on the integration and balance of opposite points of view (dualities), i.e., dialogue or dialectics of human phenomena [4]. In this context are sustainability issues and the complex nature of human phenomena, which is made simple through feasible management processes. However, humanity tends to apply the mechanical phenomena of linear logic to human phenomena, thereby causing praxis problems.

The holistic view is divided into two parts, namely holology, which is the study of the whole, and holopraxis, which is the practice of the whole. This Brazilian approach is connected, not only with studies but mainly with the praxis, especially in education and psychotherapy. Two archetypical<sup>1</sup> principles form the framework of our Brazilian theory, namely duality and four elements, which, in connection to Jungian psychological functions [6], are shown in the following epistemic ways [3]: **technoscience**(sensation + thinking), **philosophy**(thinking + intuition), **tradition** (intuition + feeling), and **art** (feeling + sensation).

These are ways of understanding reality through the four basic disciplines. These connections between the four disciplines and Jungian functions are relative, as art has intuitive aspects, tradition has developed rational foundations, and science often initiates its theories on an intuitive level. Furthermore, technoscience involves a duality of technology and science. The discovery of scientific theories can create methods of action, i.e., technology. Much like with quantum and relativistic mechanics, science avails technology as an empirical reference for corroboration. This establishes a feedback relationship, which often makes it difficult to separate technology from science. The term "technoscience," which relates to this idea, means technology linked to the Jungian function of sensation (empirical intelligence) and science connected to thinking (rational intelligence) as presented in Table 2, which denotes the relations to Myers-Briggs Type Indicator (MBTI system) [7], an improvement of the Jungian psychological typology.

## 2.1 Duality Principle

Considering duality as evidenced in the four disciplines, our approach for applied sustainable HPTD-M involves duality, which implies dialectics and dialogues between opposite points of view.

De Broglie, who empirically discovered the duality of **wave and particle** in modern physics in 1924 postulated that both **matter and radiation**, which are fundamental constituents of the universe, behave simultaneously as a wave and particle through an experiment with electrons [8]. On the other hand, at the macroscopic level, mass is concentrated energy as evidenced by the famous equation,  $E = mc^2$  (energy is equal to mass times the square of light speed). Thus, as Einstein said in one of his speeches, there can be a duality of **mass and energy** as different manifestations of the same thing [9]. From this "concentrated"

<sup>1</sup>Archetypes are universal images or patterns, culture-independent models or scripts. The initial concept comes from Plato, but Jung explored the idea in his theory of the collective unconscious.

and “expanded” principle, other dualities emerge in physics, philosophy, and Jungian psychology, such as subject-object, introversion-extroversion, and conscious-unconscious. [10]

Besides, we can conclude that the two branches of modern physics, namely quantum and relativistic mechanics (micro and macro) are another set of duality, as one theory complements the other, and both are empirically confirmed. About mathematics, Newton invented calculus almost at the same time Leibniz did in the 17th century. Thus, in formal history, both are considered creators. Calculus derivatives are instantaneous rates of change, which are, in turn, the ratios of small changes. In Newton notation, the primary objects are functions such as  $f(x) = x^2$ , and derivatives are written with a prime as in  $f'(x) = 2x$ . Whereas in Leibniz notation, the primary objects are relationships such as  $y = x^2$ , and derivatives are written as a ratio as in  $dy/dx = 2x$  [11]. Thus, we can conclude that the two approaches, Newton and Leibniz, show a type of duality and complementarity, i.e., **function and relationship**.

In that sense, the abstract math and abstract meaning can be close to symbols of traditions, such as the European Alchemy (under subsection 1.2). It is no coincidence that most of Newton’s work is about the Alchemical tradition. Thus, **technoscience and tradition** are a type of duality and complementarity. An example is traditional Chinese medicine. Although it is more than five thousand years old, many doctors incorporate it with Western medicine.

Furthermore, the philosophy of science is an important issue about intuition (abstraction) before rationalizing it in a structured concrete theory. Einstein supposedly said once: “*The intuitive mind is a sacred gift and the rational mind is a faithful servant.*” It is a controversial statement, which is denied in formal aspects by many rationalists or reductionists, who tend to confuse this remark with mystical or esoteric ideas. The same happened to Jung several times. HPTD-M is not a clear business. Jung was accused of not being concise, although that is how human phenomena work. It cannot be a rational and clear mechanical formula; it involves dialectics. Jung takes it a step further than Western science: he shows its limitations like Einstein and other modern physicists. Jung developed a model that compares causality (cause and effect of the Western logic) and synchronicity (the way of seeing reality from the East, based on meaning). [12]

Causality can be translated from *stricto sensu* (strict sense) to rationality in our model as given in Figure 1. Furthermore, “meaning” in Jungian synchronicity has the same significance as “sense”, which is used in the same figure. An easy example to understand the idea of meaning: Someone says “It doesn’t make sense” after a suggestion or proposal has no connection to the reality to be faced. Furthermore, **causality and synchronicity** would be in *lato sensu* (broad sense) closer to the **analytical and synthetic** methods in Figure 1.

Einstein and Jung did not have problems with scientific consistency. Those who tend to see reality only through a mechanistic lens are the ones who get confused. From the HPTD-M perspective, it is a sound argument for **technoscience and philosophy** to have a dialogue. Great scientific discoveries can come from insights (intuition or intuitive intelligence), for instance, when the chemist, Kekulé, pictured the ring structure of benzene after dreaming of a snake biting its own tail. Naturally, Kekulé conducted a lot of rational work and research before reaching that point. Intuitive intelligence and rational intelligence complement each other and create a synergy. Those who know Einstein’s philosophy of science recognize his psychological pattern in that statement, even if taken in the literal sense. In HPTD-M, content tends to be more important than formal aspects of texts or statements as is usual in law doctrine about the reasonableness principle over literal interpretation (when the literal hermeneutic is unacceptable or does not make sense).

Thus, reasonableness should not be confused with rationality as the study of the law reveals (see Figure 1). Law is considered a science by Wiviurka, a Ph.D. specialist [13]. However, in a *lato sensu* approach, a generalist such as a manager could consider law as an art, philosophy, or legislation technique, but not a science. Furthermore, in HPTD-M, instead of contradictions between viewpoints, a fertile complementarity in connection to the dialectics of human phenomena is formed. As an example, a possible form of HPTD-M dialogue in public administration is shown in Table 1.

Also considering Table 1, **Efficiency** “To do things right” in a double meaning i) process compliance and ii) lowest cost. In Brazilian Federal Constitution, “efficiency” is mentioned in articles 37 and 74.

### Types of Intelligence

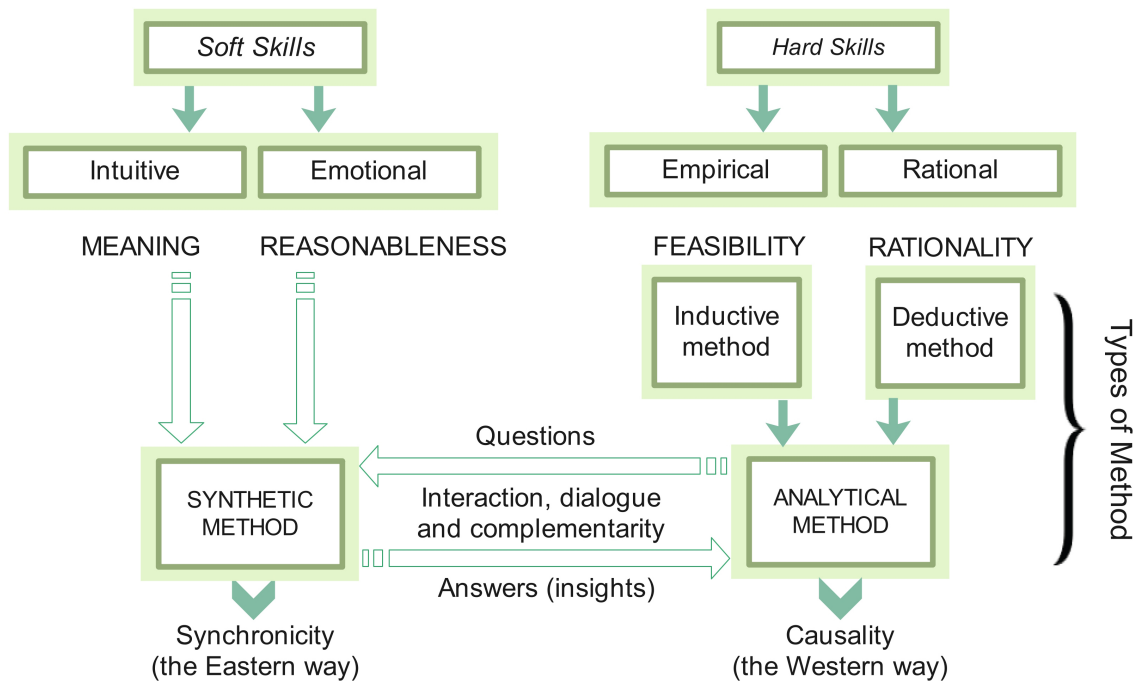


Figure 1: Nature of dualities in public administration [14].

Table 1: Nature of dualities in public administration [14]

Nature	Strito sensu	Lato sensu
Academy	Academics: Ph.D., MSc	Executives: MBA
Technic	Specialists	Generalists
Administration	Technicians	Managers
Indicator of	Efficiency	Effectiveness
Political science	Techno-bureaucrats	Politicians

**Effectiveness** is “To do the right thing” in the sense of achieving goals. In Brazilian Federal Constitution, “effectiveness” is mentioned in article 74, in the form of “efficacy”.

Capra, a Ph.D. in physics, is very persuasive when pointing out that humanity, in general, tends to mirror themselves in the Newtonian classical models and the Cartesian way, which are typical of mechanical phenomena [15]. In our opinion, Capra’s systemic view that is based on modern physics closely links to HPTD-M in terms of understanding human phenomena.

Finally, the duality principle has a direct connection to sustainability, since, in a lack of dialogue between lato sensu (broad sense - management and generalist view) and strito sensu (strict sense - specialist viewpoint), solutions won’t be sustainable in terms of human phenomena.

**Table 2:** *The four epistemic ways or disciplines*

Discipline [3]	MBTI system [7] (based on Jungian Functions)	Jungian functions [6]	Type of intelligence [17] (based on Jungian Functions)
Technoscience	concrete + objective	sensation + thinking	empirical + rational
Philosophy	objective + abstract	thinking + intuition	rational + intuitive
Tradition	abstract + subjective	intuition + feeling	intuitive + emotional
Art	subjective + concrete	feeling + sensation	emotional + empirical

## 2.2 Dualities and Four Elements Model

Dualities are the basis for the troubleshooting instruments in our model that is developed in Table 2. The four elements are connected to dualities by their combination of pairs considered the dialectics process as a whole (see also Figure 1) given the MBTI system, which is an evolution of Jungian typology that is based on four psychological functions, namely **sensation, feeling, thinking, and intuition**.

Figure 1 was structured as a reflection on how to deal with solutions to managerial problems or other human phenomena troubles in terms of dualities or polarities and the four element requirements, namely meaning, reasonableness, feasibility, and rationality. This figure is a result of our conception, and it is developed based on Jung’s psychological typology [6] and the MBTI system, which improved the Jungian classification. [7]

Finally, HPTD-M represents a view of TD not only as scientific knowledge but as an interaction and integration of many human phenomena aspects:

- a) Technology (mostly inductive and practical) and science (mostly deductive and theoretical) interact and are integrated by the idea of technoscience (hard skills).
- b) Technoscience (hard skills) is connected to the analytical method and causality.
- c) Other epistemic ways (soft skills) must dialogue with hard skills: These are the synthetic method and the synchronicity (the meaning of a solution before its rationality).
- d) So, the four requirements for troubleshooting in any HPTD-M project are MEANING, REASONABLENESS, FEASIBILITY, and RATIONALITY.

In this connection, sustainability and complexity transformed into simplicity come out as a result.

## 2.3 Sustainability and Complexity

The HPTD-M can be considered sustainable as far as the complexity connected to human phenomena is concerned. Human phenomena differ from mechanical phenomena, as the variables are much more unpredictable. Thus, rather than the viewpoint of causality (cause and effect of the mechanistic approach), the dialogical way takes over in our model.

Considering sustainability concepts developed by Capra’s systems paradigm [14A, 17], in our opinion, as an engineer with experience in business management and public management (which uses several business administration technics), sustainability is an idea that is often ecological or related to social issues, like with Environmental Social Governance (ESG), which is mainly related to the external environment of public organizations – governability. However, the internal environmental issues are not any less important as regards the quality of public expenditure and all the actors involved in the processes of PA – governance.

Sustainability and dialectics are connected, which means listening to all the actors involved in the processes including the techno-bureaucrats (for technical and governance issues) and politicians (for legitimacy and governability issues), managers (for an executive viewpoint), and academics (for a theoretic

approach), and generalists (for a synthetic vision) and specialists (for an analytical vision). This dialogical view minimizes the risk of not seeing some requirement for the best solution possible, as the tendency is to find a balance between governance and governability.

Complexity is a part of Nicolescu's TD [1] as well. In our empirical perspective, the complexity of human phenomena can be made simple with duality and the four elements shown in Figure 1. Leonardo da Vinci once said, "simplicity is the ultimate sophistication." Experienced managers know that complex formal processes for decision-making are not sustainable in the long term. Complexity must be gradually transformed to simplicity, but not simplism with gullibility. This implies that the processes must be feasible in praxis after being exhaustively studied and discussed with many actors from different perspectives.

### 3 Review of the Literature

#### 3.1 Capra and D'Ambrosio – Sustainability

Our HPTD-M research commenced in 1987 with Capra's systems approach, *The turning point*, which was based on modern physics, just before our graduation as a civil engineer with an emphasis in sanitary engineering. Besides comparing the duality, of Yin-Yang, with the wave-particle in modern physics, in connection to his idea, Capra said the following:

*Ecosystems **sustain** themselves in a dynamic balance based on cycles and fluctuations, which are nonlinear processes. Linear enterprises, such as indefinite economic and technological growth or, to give a more specific example, the storage of radioactive waste over enormous periods will necessarily interfere with the natural balance and, sooner or later, will cause severe damage. [16]*

In *The Web of Life*, Capra continues in the same systemic view:

*Not only do our leaders fail to see how different problems are interrelated; they also refuse to recognize how their so-called solutions affect future generations. From the systemic point of view, the only viable solutions are those that are "**sustainable**". The concept of **sustainability** has become a key concept in the ecology movement and is indeed crucial [...] the great challenge of our time: to create **sustainable** communities – that is to say, social and cultural environments in which we can satisfy our needs and aspirations without diminishing the chances of future generations. [18]*

D'Ambrosio himself, as one of the holistic TD theorists [3], has an article on sustainability connected to education and TD. For sustainability, the author defends the solution of recognizing the relationship between knowledge systems and human values, i.e., to think of ethical values and TD knowledge at the same time, which is a state of real conscience only possible when both human knowledge and behavior are solidary. In the author's paper abstract in English, this viewpoint is clear [19]. This paradigm is very similar to our idea of duality dialogue in HPTD-M.

#### 3.2 Nicolescu – Complexity

In accounting for Nicolescu's TD theory, the idea of complexity in connection with our HPTD-M view of turning complexity into simplicity through managerial solutions, the following can be said:

*The complexity axiom: The structure of the totality of levels of Reality or perception is a complex structure: every level is what it is because all the levels exist at the same time. [2]*

#### 3.3 Holistic TD

The Brazilian paradigm developed by Weil, Crema, and D'Ambrosio [3] is one of the bases of the HPTD-M theory (see 2.5).

### 3.4 Public Administration

Bureaucratic bias in PA can be seen as the excessiveness of the rational and empirical types of intelligence and the analytical method. The synthetic method of intuitive and emotional intelligence needs to be stimulated for problem-solving. This dialogical model is our HPTD-M point of view through dialectics, which is applied to human phenomena, where variables have a high level of uncertainty, as opposed to the mechanical phenomena perspective in bureaucratic bias.

**Italy:** In 2008 a study on active and passive waste of public expenditure was conducted [20]. Although it is not a TD article by itself, the research can be connected to HPTD-M theory, considering the duality of active vs. passive: the trade-off and interaction of those two opposites.

**Romania (author Nita):** The public administration education needs to necessarily be transformed to a TD viewpoint [21]. Emotional and intuitive types of intelligence need to be included in public administration education

**South Africa (author Uwizeyimana):** Disciplines involved in the TD approach to public administration, namely political science, economics, jurisprudence, psychology, sociology, geography, criminology, anthropology, history, education, philosophy, and religion [22]. In our approach, public administration involves four major groups of disciplines, namely politics (in the broad sense of coordination and human interactions, not only political science or partisanship ideology), economy (technoscience), law (bureaucracy), and psychology (humanities). There must be a dialog between all of them.

**Brazil:** Our research on quality of public management [14] from 2021, in the context that was one of the bases of our 2022 HPTD-M theory.

Italy, Romania, South Africa, and Brazil have similarities, partly due to the Latin culture (prevalent in Italy, Romania, and Brazil), but mostly due to bureaucracy and excessive statutory law, with fewer discretion for managers (Italy, Romania, South Africa, and Brazil).

### 3.5 HPTD-M

The Holopraxis Transdisciplinary Management is our theory released in April/2022, based on the holistic TD of Weil, Crema, and D'Ambrosio, as already mentioned. [4]

Considering all the references in this subsection 2.6, our HPTD-M framework goes in the direction of:

- a) **Sustainability** – the promotion of dynamic balance between opposites through the dialectics process, including all actors.
- b) **Complexity** – is transformed into simplicity (not to be confused with simplism) through deep studies and exhausting discussions involving all parts.

Besides those three concepts applied to HPTD-M, a synthesis of our TD view from different sources can demonstrate how our HPTD-M theory was developed throughout many years, as a result of the dialogue between all those approaches.

In Table 3, the term “vs.” must be understood as “interaction and integration”, not simply an opposition of polarities, considering this duality TD main principle in the HPTD-M viewpoint.

## 4 HPTD-M as an Effective Instrument for Public Administration

### 4.1 Public Administration Described by four Disciplines

According to Uwizeyimana & Basheka, TD applied to public administration, the history of public administration can help understand how disciplines related to public management were formed, starting from the duality politics vs. administration at the beginning of the 20th century, through the scientific



**Table 3:** *Synthesis of TD approaches in this article*

Author	Type of TD	Reference
Nicolescu	General theory (originally from physics)	[1]
Weil, Crema, D' Ambrosio	Holistic transdisciplinarity: General theory (psychology, anthropology, math, sciences, and education)	[3]
Weil	TD pyramid of 4 disciplines and 3 conscience levels	[3, 4]
Crema	The power of encounter: Analysis vs. synthesis	[15, 24]
D'Ambrosio	Education for sustainability: Knowledge vs. human values	[17]
Capra	Systems theory (originally from physics)	[14A, 16]
Jung	Synchronicity theory: Causality vs. synchronicity	[12]
Max-Neff	Ecological Economics: Understanding vs. knowing	[23, 24]
Viparelli	Politics: "Transpolitics"	[23]
Wiviurka	Law: "Trandisciplinarization of law"	[13]
Nita	Public Administration: New TD education	[21]
Uwizeyimana & Basheka	Public Administration: Interaction of 12 disciplines	[22]
This author	HPTD-M theory: TD as hard skills vs. soft skills	[4]

administration of Taylor and Fayol in the early 20th century, until when history becomes more complex as human issues in public administration began to be considered, and culminating with e-governance and the 4th Industrial Revolution in 2017 [22].

In our opinion, the four key disciplines can be evidenced by the consolidation of the twelve disciplines enumerated under Figure 1 in the South African paper to facilitate the vision of the whole system of public administration. Our idea of reducing the twelve disciplines from the South African paper to the following four groups came from the four epistemic groups of disciplines shown by Weil, D'Ambrosio, and Crema. [3]:

- **Politics:** Includes not only traditional politics but also intuitive leadership. It involves dialogue and articulation between the various actors with different ideas for solutions, whether in the internal or external environment of organizations. Here it applies to go beyond the mere technicality of political science. Also, this is not to be confused with partisan ideology.
- **Technoscience**, starting with **economics:** The interaction between technology and science including economics, administration, and other natural sciences. Economics is the dominant discipline in public management, as technoscience is involved with the discipline of general administration.
- **Bureaucracy – law** and legislation: Law is essential to understand bureaucracy, which often becomes self-centered and dysfunctional when the ends become the means.
- **Psychology – humanities:** Psychology includes other humanities, which are not technoscience in *lato sensu*; this implies that they are not "exact" or biological. Technical leadership is included in this context, it is vital for understanding the interactions between the internal and external environments of organizations, the actors involved in the processes, and the relationship of public servants at an individual and collective level.

**Example:** This study expresses a dialog between the theory and praxis of public management in Brazil. Interdisciplinarity means "between disciplines", i.e., showing the results in six dualities, considering the

four groups of disciplines in public administration. Our take on interdisciplinarity slightly differs from that of Nicolescu's theory, as the former is more empirical compared to the latter [1]. Thus, the following are the **six interdisciplinaritys** (or connections between the combination of each two groups) that we identified empirically by order of importance:

- A) **Technoscience with bureaucracy:** The techno-bureaucratic risk refers to the gullibility of not understanding the vital aspects of politics and psychology that interfere with public administration.
- B) **Bureaucracy with psychology:** As demonstrated under section 5, managers tend to be paralyzed as a consequence of perceiving a high risk of personal accountability if there is an excessive presence of bureaucracy in the public administration system.
- C) **Technoscience with politics:** Public servants tend to be prejudiced against politics, but at times forget that a merely technical approach with their superiors would not suffice to show the whole picture of the projects and concrete proposals in public administration. Emotional intelligence must be used to convince their superiors to ensure that the information reaches higher instances until it gets to the politicians in Congress. In this context, politics is not an ideology, but a dialogue between lower and higher instances to subsidize the decision of the decision makers accordingly.
- D) **Technoscience with psychology:** The executive business management idea, where risk is involved in not observing the legislation of bureaucracy and its limits to managers' discretion.
- E) **Psychology with politics:** Communication bias can result in manipulation if certain ethical milestones of governance and compliance are not observed.
- F) **Bureaucracy with politics:** This is the party ideology that can contaminate public management if considered with a dogmatic bias.

The six interdisciplinaritys above show the risk of each approach, namely gullibility, management inertia, little information in higher instances, excessive management discretion, manipulation of information, and lastly partisanship and dogmatism. To conclude, HPTD-M that is applied to public management is portrayed as an alternative to balance all the limits of the disciplinaritys (technoscience, bureaucracy, psychology, and politics) and the six interdisciplinary interactions. Concrete examples, in this case, are very delicate to be disclosed as far as ethics is concerned, but evidently, the techno-bureaucratic bias tends to harm the psychological sustainability of managers, and consequently, the subordinates, which tend to leave politicians, who are the final decision-makers in public administration, not informed accordingly.

## 4.2 Four Types of Intelligence in a Perspective of Education in Public Administration

From another perspective, Nita proposes a new type of education in public administration, which consists of learning to know, do, live, and be. [21]

Analogies with the four types of intelligence from a Jungian point of view would be rational, sensitive, emotional, and intuitive, respectively. Here, a dialogue between the author's approach and our HPTD-M vision is possible based on Jungian psychology and the MBTI system. Note the following: [7]

- **To know** in the form of research and intellect: objective **rational intelligence**.
- **To do** in the best possible way: concrete **empirical intelligence**.
- **To live** in a society with self-control and relationship capacity that is appropriate to the norms and rules of coexistence: subjective **emotional intelligence**.
- **To be** in terms of self-knowledge, which the author understands as spirituality – we understand as **intuitive intelligence**.

Moreover, intuitive intelligence involves, as a counterpart, the learning that is required in terms of innovation, as innovation is a characteristic that is derived from intuitive insights of new ideas from the unconscious to the conscious in the Jungian paradigm. In this sense, spirituality relates to intuitive intelligence, which is abstract.

In addition to this, at the personal level, as opposed to collective or organizational, there is a fifth integrative element. In ancient traditions such as European alchemy, it was considered quintessential for conscientious or beginning development, which is the concept of individuation in Jungian psychological theory. Conscientious development is closely linked to the cultural and behavioral transformations that are relevant to the management of public organizations or institutions.

According to Crema, the integration of the four types of intelligence is manifested in a fifth Jungian function, the Self, which is intelligence of psychic totality. [15]

**Example:** To understand the Self principle, the four types of intelligence need to be integrated into a duality of methods analytical (rational + empirical) and synthetic (emotional + intuitive). This duality represents the integration and interaction of opposites. Owing to the excessive analytical presence in the Brazilian organs of public administration, the sustainability of managers is unbalanced. Brazilian public servants have stability and can't be dismissed, except for crimes and other issues of personal responsibility. Many tend to abandon the idea of taking up management positions and prefer to stay in the original career of techno-bureaucrats, controllers, or consultants in the public administration. The excessive controls placed in all public procedures make civil servants embarrassed, fearful, reactive, and not proactive. Rather than focusing on the core business of the organizations, these public servants tend to consider mainly bureaucracy owing to personal accountability.

## 5 HPTD-M Reflected in Economics, Law, Psychology, and Politics – Governance and Governability

Max-Neef criticizes the dominant **scientificism in economics** [24], and asserts that he would define our time as having reached a point in our evolution as human beings where we know a lot, but understand very little. While it makes sense in the field of knowledge that I (subject) represent a problem and look for its solution (object), in the domain of understanding, there are no problems, but only transformations that integrate a subject and object. It can be concluded, therefore, that knowing and understanding belong to different levels of reality. [25]

Regarding legislation, Wiviurka analyzes the possibility of applying the epistemological practice of TD to the science of law. For this, he first presents some characteristics of HPTD-M thinking, highlighting the complexity and form of development of the TD research (as opposed to disciplinary, interdisciplinary, and multidisciplinary research), which can be approached more easily from the law. Thomas Kuhn's thinking about the evolution of science is presented to emphasize the scientific revolutions, a process by which one paradigm succeeds another model in which the **idea of “transdisciplinary” of law, a neologism** from Wiviurka. [13]

Considering psychology, for Crema, there is a hypertrophy of information and knowledge of broad, unrestricted, and immediate access, and simultaneous atrophy of the process of discernment and understanding. As Heidegger denounced aptly, we have never been more alienated from the human issue. Moreover, Crema presents the concept of normosis, which he developed together with Pierre Weil and Jean-Yve Leloup. It implies the **pathology of normality: “knowing” much more than “understanding” reality**. [26]

About politics, Viparelli adopts the **concept of “transpolitics”** and corroborates our opinion in the following manner: subjectivity and objectivity are inseparable; recognizing the humanistic core of politics to overcome reductionism and an excessive analytical presence in human sciences; rationalism is insufficient; reductionism needs to be removed and the issue around the meaning needs to be centralized. This corroborates our idea from Figure 1, i.e., a dialogue between synthetics (meaning and reasonableness) and analysis (feasibility and rationality). [23]

In public administration, Baesso provides the example of five people describing a traffic accident. According to the perspective of each one, there will be five versions. Hence, the varied versions of dialectics and discussions for the common good of Aristotle through an agreement between the different world views. In this connection, technical public servants influence important policy decisions. Politicians are always placed amid technical rationality and public opinion. Finally, the scholar asserts that technicians will never have the neutrality that Max Weber and others imagined for rational bureaucracy. For Baesso, governance (internal organizational environment) and governability (external environment) are a duality of complementary processes. [27]

In the context of public sector bureaucracy, in December 2018, the outcomes of the technical discussions in the Brazilian Government were disclosed for preparing a guide for the governance policy of the direct, local, and foundational federal public administration as presented by the Civil House of Presidency of the Republic. The following excerpts stand out:

While the law is obviously important as a means of legitimizing public action and guaranteeing citizens' rights when overused it can slow down government processes and produce the seemingly endless red tape. The argument here is for the simplification of procedures, allowing discretion and weighting of possible alternatives to be considered when evaluating the performance of public officials [...] By basing efforts to promote integrity on a rational decision-making process model, in which unwanted practices are combated through positive and negative incentives, without taking into account the individual dimension of human behavior, the results have not been the most satisfactory [...] [28]

The 2018 publication of the Organization for Economic Co-operation and Development (OECD) corroborates the Brazilian Government's publication in the following manner:

Common policy recommendations derived from this include control and sanctions and reducing the discretion of decision-makers to diminish their scope for misbehavior. Sometimes, this has led to over-regulation, the establishment of paralyzing controls, and distrust in the public administration. [29]

## 6 Quality of Public Expenditure

An analytical approach based on a study conducted in Italy [20], where active waste (corruption) implies direct or indirect benefit to the decision-taker, while passive waste – 83% of the estimated total – does not imply benefit to the decision-taker, derives the following conclusions:

- An inability to minimize costs.
- An absence of incentive to minimize costs.
- Presence of excessive regulatory burden (increase in fixed costs).

There are similarities between Brazil and Italy regarding the positive Law and Latin culture, such that an extrapolation of this Italian situation to the Brazilian scenario can be considered reasonable.

Therefore, it is necessary to evaluate the control and compliance instruments according to:

- reasonableness, in a broad sense (*lato sensu*), includes acceptability and feasibility; and
- the cost and benefit for the effective quality of expenditure.

About PA, Brazil is a very peculiar country. Public servants are technically well-prepared, but the following circumstances are terrible for quality expenditure:

- statutory law (excess of written legislation);

- a small margin of discretion for managers;
- legislation with no incentive for innovation; and
- excessive use of control and analytical methods as a predominant paradigm (only hard skills are stimulated).

In this aspect, a simple equation can evidence the problem of these two contrasted variables, namely active (corruption) and passive (mismanagement) waste. It is necessary to evaluate the compliance and control instruments to observe the following: reasonableness – in a broad sense, acceptability and feasibility; and the cost and benefit for the effective quality of expenditure. In numbers [14]:

- positive effect on the prevention of corruption  $\sim 17\%$  of  $x$ ;
- negative effect on passive waste  $\sim 83\%$  of  $y$ ;
- then,  $x > 0$ ,  $y < 0$  and Total Cost or Benefit  $\sim 0.17x + 0.83y$ .
- Hypothetical example: If  $x = 30\%$  and  $y = -6.14\%$ , Total  $\sim 17\% \times 30\% - 83\% \times 6.14\% \sim 0\%$ .

In this hypothetical exercise, the actions against corruption reduced it by 30%, considering corruption itself, but all of this would be nullified if there was negative feedback of 6.14% in terms of inertia, defensive actions, fear, or embarrassment of managers in the public administration, which would result in mismanagement. However, it should be emphasized that the loosening of the fight against corruption is not defended here, but systemic criteria for action that takes into account the balance of feedback on the defensive behavior and inertia of goodwill managers.

In our opinion, this is a bottleneck of the problem of quality of the public expenditure in Brazil, which is considered by taking into account the excess of bureaucracy and controls, especially against corruption as prevention, without evaluating its negative effect on the proactivity of managers.

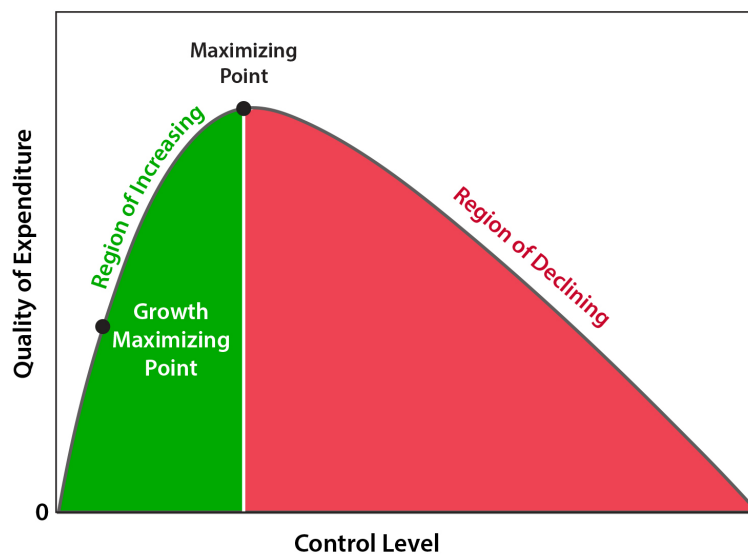


Figure 2: Quality of expenditure as a function of control level [14].

Figure 2 represents a complementary and synthetic approach to the numeric example, and shows a theoretical point that maximizes the quality of expenditure versus the level of control. It was conceived based

on an analogy with the de Laffer curve for economics. Brazilian managers are insecure to make decisions, defensive, and mainly without proactivity. The negative effects on the quality of public expenditure draw attention to the incentive proposals that allow managers to act effectively. Thus, this is a matter of **trade-off between quality and control**.

Finally, this model is not only based on the 2009 study conducted in Italy, which focused on economics [20] and our analytical/synthetic managerial view of HPTD-M applied to the quality of public expenditure, based on our 2021 monograph [14].

A 2022 article by a political scientist and anti-corruption professor, Johnston, is very close to our approach. For the author, a strict and mere fight against corruption is not feasible. In a broad sense, we could say that “corruption prevention” is part of “control” as a variable in our 2021 monograph (see Figure 2). Johnston’s *Zero tolerance for “zero tolerance”* is very provocative in that sense, as shown in the following quote:

*Rather than launching a broadside against all forms of corruption at all levels, we should focus selectively on government functions and services citizens receive [...] For reform to be sustained and to have a chance to succeed, citizens, activists, leaders, and international partners must resist the temptation to seek immediate once-and-for-all solutions, and instead will all have to prepare for a lengthy struggle—one that may involve major reverses and aim at results for which it may be difficult to claim credit. [30]*

## 7 Proposal of a Model for Brazil (Sustainability and Quality of Public Expenditure)

The Italian study denotes a public expenditure waste of 17% due to corruption and 83% due to mismanagement. There are similarities between Brazil and Italy in the positive Law and Latin culture, such that an extrapolation of this Italian situation to the Brazilian scenario can be a reasonable viewpoint. Therefore, it is necessary to evaluate the control and compliance instruments to observe the following:

- reasonableness – in a broad sense – includes acceptability and feasibility; and
- the cost and benefit for the effective quality of public expenditure.

Regarding public administration, Brazil is a very peculiar country. Public servants are technically well-prepared, but the following circumstances are terrible for quality expenditure:

- statutory law (excess of written legislation);
- a small margin of discretion for managers;
- legislation with no incentive for innovation; and
- excessive use of controls and analytical methods as a predominant paradigm (only hard skills – technical skills – are stimulated).

Note that the intention here is not to blame anyone for the problem. Any attempt in that sense is unintelligent and naive, as the question involves mistaken mental models, reductionist behaviors, and dysfunctional interactions between the two key actors in the process that results from the institutional system itself (i.e., managers and controllers). Thus, the following four points of view need to be considered for sustainability: managers, controllers, the interaction between managers and controllers, and a system or status quo with various institutional dysfunctions. Among these dysfunctions, the most important, in our opinion, are the following:

- The legislation only provides punishment to the public agent for a deed or gross error, without any express provision for an isonomy of opinions or a dialogue between managers and controllers.

- The lack of instruments to provide legal certainty or support to the decisions of the manager, like those that exist for executives in the state, including D&O – liability insurance, statutory protections, and specialized lawyers to defend the manager in good faith.
- It is necessary to study the ways to value a manager who delivers effective results to public administration. While a manager with bad faith relies on judicialization indefinitely and pays for the best lawyers, a manager in good faith has to pay specialized and expensive lawyers out of his pocket. Therefore, specialized lawyers should be paid by the Union for every manager in good faith, as those in bad faith already tend to pay out of pocket for the most expensive. Still, if found to be misconduct or gross error, the manager would have to reimburse the costs. Family tragedies can be avoided with those proposed changes in legislation, such as public servants head of a family eventually having to sell their home or their property mortgage to pay lawyers.
- Managers and controllers are encouraged to gain training through master's degrees or academic doctorates. While there is nothing wrong with master's and doctorate academic studies, they should be seen as a specialist approach, which should sync with the generalist managerial viewpoint. Both are important in terms of HPTD-M and management sustainability. However, in Brazil, there is no incentive for courses such as the MBA model in the USA with a management focus, or small-term management training programs that promote a more pragmatic view from the day-to-day praxis. The exceptions include an excellent training program for managers promoted by the National Treasury. It is necessary to understand that academic courses are for the development of specialists, and not generalist managers in praxis. There seems to be a great deal of confusion in this regard, between the public servants themselves, managers, and controllers.

For all the above, it is urgent to discuss proposals to solve this bottleneck of sustainability and quality of Brazilian public expenditure through dialectics among managers, controllers, academics, and legislative advisors. The following two measures seem to be essential in this sense:

- A) **Bottom-up - promoting cultural and behavioral transformation.** Development of a managerial paradigm through short-term training programs for managers and controllers, including encouragement for training programs with a more managerial focus as a complementary approach to master's and doctorate degrees, which are considered most important to the development of public administration. The academic specialist tends to be distant from the pragmatism of management. Only **synergy and dialectics between the specialists and generalists** will make it possible to catalyze transformations in the culture and behavior of managers and controllers. In this regard, the physicist and systems theorist, Fritjof Capra, once said, "*The time has come for other sciences to broaden their underlying philosophies.*" *Capra's The Turning Point* [15] gives an excellent perspective to those most connected to the scientific method as a facilitating instrument for understanding the TD sphere, especially the necessity for cultural transformations to overcome the Newtonian and Cartesian paradigms as the mainstream way of portraying reality (see Figure 3).
- B) **Top-down - change in legislation.** This measure includes the following: the transformation of focus by adjusting art. 28 of LINDB, and a study of the institutional provisions of support to the manager, such as D&O and statutory protection, which already exists in some state-owned companies.

As a guideline for the proposals, top-down and bottom-up, Figure 4 was conceived based on Jungian psychology [6], the MBTI system [7], and the complementarity of governance and governability [27].

In the figure, the circle separates the internal environment of the **subject** or introversion of each institution, i.e., **governance**, from the external environment of the **object** or extroversion of each institution, i.e., **governability**. As seen in modern physics, subject and object can't be separated; one complements the other.

Inside the circle, the psychological functions of the institution can be classified according to the MBTI system in the following manner: **judgment** on the horizontal axis and **perception** on the vertical axis.

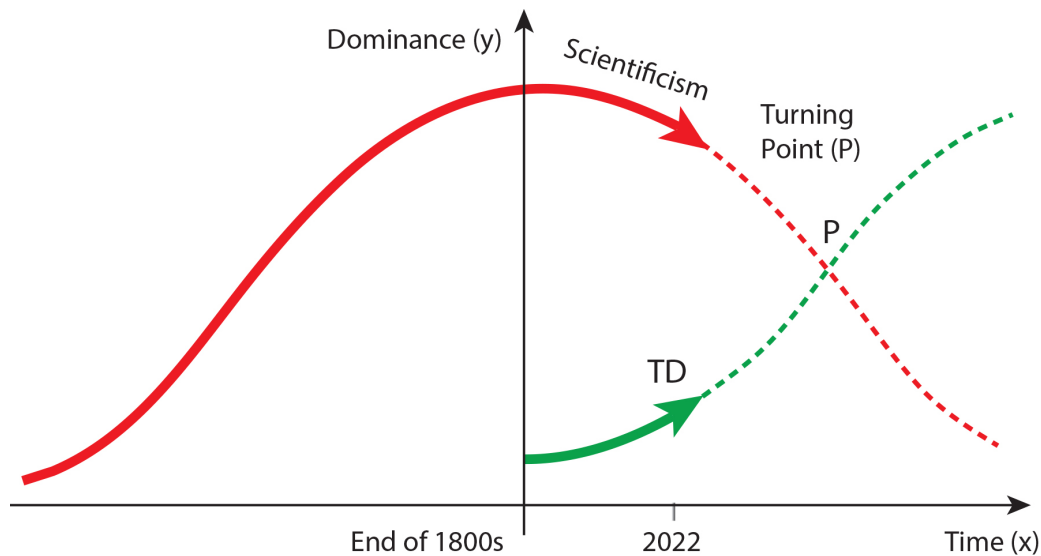


Figure 3: Cultural transformation and the turning point adapted from Capra [15].

**Thinking** and **feeling** are opposite functions of judgment that complement each other.

**Sensation** and **intuition** are opposite functions of perception.

Thus, the four types of intelligence can be correlated to the four Jungian functions in the following manner:

- thinking with rational intelligence;
- feeling with emotional intelligence;
- sensation with sensitive intelligence; and
- intuition with intuitive intelligence.

Finally, Figure 4 represents the following four types of dualities in terms of dialectics, the basis of HPTD-M, and the interaction and integration of opposites:

- Subject and Object;
- Judgment and Perception;
- Thinking and Feeling; and
- Sensation and Intuition.

The four epistemic ways or disciplines, namely technoscience, philosophy, tradition, and art are also to be considered, as they are in the four quadrants of the Cartesian plane.

- I. **philosophy** (thinking + intuition),
- II. **tradition** (intuition + feeling),
- III. **art** (feeling + sensation), and
- IV. **technoscience** (sensation + thinking).



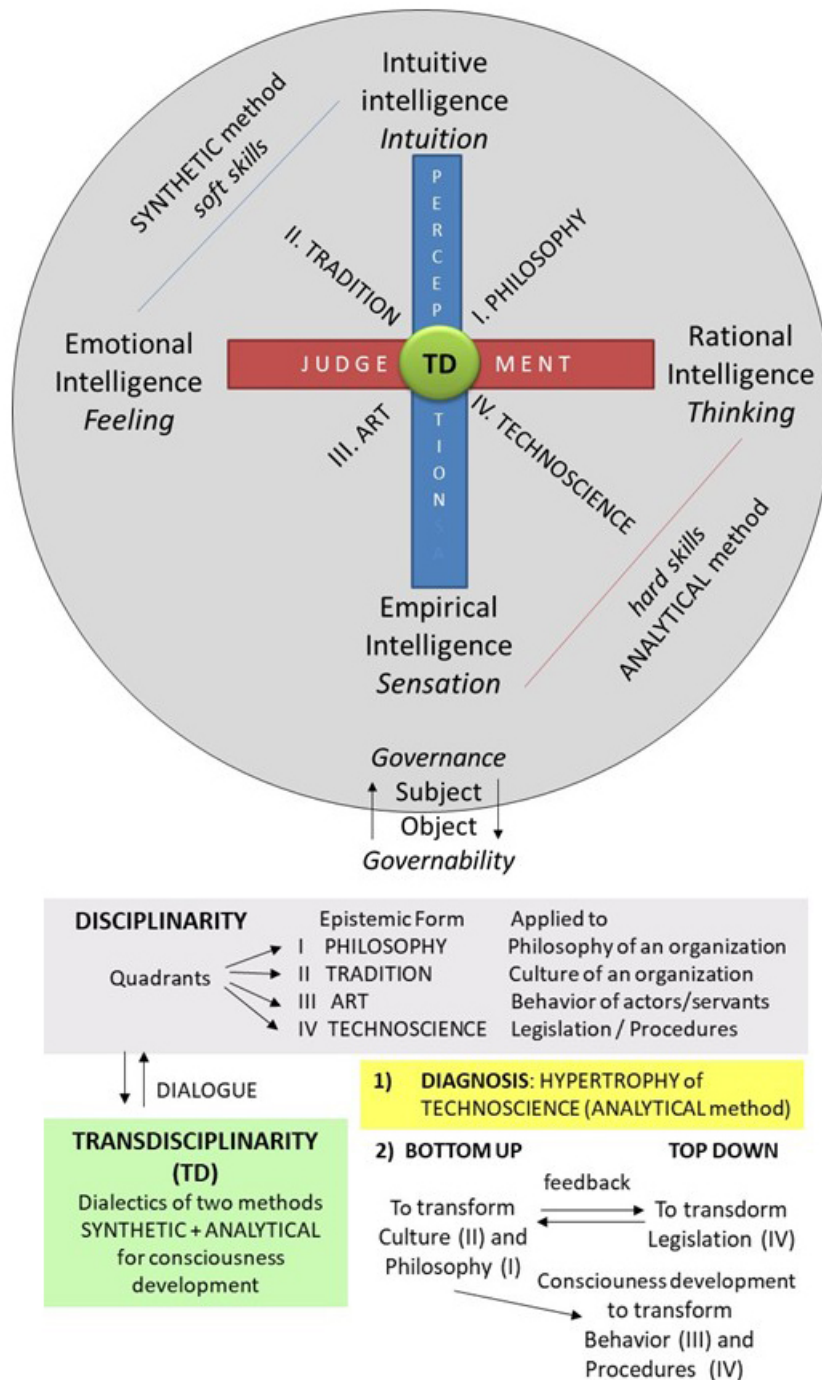


Figure 4: Sustainable management: diagnosis and proposals of bottom-up and top-down [4].

Moreover, technoscience is the result of interaction between technology and science, such that it is sometimes difficult to separate one from the other. [3]

Considering our original approach for troubleshooting in Figure 1, the following details of Figure 4 can

be presented:

- Synthetic and analytical methods are connected to soft and hard skills, respectively.
- The four epistemic ways of technoscience, philosophy, tradition, and art are shown in each quadrant of the Cartesian plane.
- Emotional and empirical types of intelligence are at the extremes of the judgment axis.
- Intuitive and empirical types of intelligence are at the extremes of the perception axis.
- HPTD-M considers TD as the green circle in the center.

## 8 Conclusions

The HPTD-M approach that is applied to sustainable public management is simple, as a result of the dialectic models for the complexity of human phenomena, which is converted to simplicity through the sophistication of studies and discussions. In praxis, something very complex won't work in terms of process design. Furthermore, our HPTD-M view is flexible if based on the principles of duality (interaction and integration of opposites, especially the analytical and synthetic methods) and four requirements (rationality, feasibility, reasonableness, and meaning). However, the holistic view of reality cannot be confused with ideology or dogmatism, which is something that happens very frequently to rationalists and scientificists, who consider themselves "exempt" and "impartial" and tend to not recognize psychology and politics as a bottleneck of public administration. HPTD-M only incorporates those two as relevant disciplines in the internal and external environment of public organizations. These disciplines include the following: technoscience – technology and science; bureaucracy – law and legislation; psychology – the behavior of all actors in public administration and their relationship; and politics in *lato sensu* – dialogue and complete information to higher instances, which is different from ideology, partisanship, or dogmatism. Currently, there is an excessive analytical presence between managers, controllers, and academics in Brazil, which can be seen by the dominantly scientific profiles, technicians, bureaucrats, or technobureaucrats, who tend to disregard human phenomena.

On the other hand are some business managers from the private sector, who try to be public managers, but fail to consider the peculiarities of public administration, such as the bureaucracy of doing only what the legislation allows in Brazil. In this aspect, there are some concrete cases of entrepreneurs not listening to various public actors and stakeholders. They tend to be self-centered and fail to understand the operating public system as a whole.

Therefore, the solution for public management sustainability involves dialogue, a dialectical process between generalist public managers and various specialists, so that culture and behaviors can be transformed. That is not the present scenario in Brazil, where hard skills (technical, scientific, and bureaucratic skills) are insufficient to provide instruments for dealing with management in an effective broad sense. Instead of being focused on the core business of the organizations, Brazilian managers tend to consider bureaucracy in the first place due to personal accountability. Pragmatic education could be a good way to catalyze transformations of the culture of managers and controllers. Change in legislation could support managers and encourage them to be more proactive, with instruments such as D&O, statutory protection, expert lawyers at their disposal in case of a personal lawsuit, and a bonus for good results. Some of these instruments for the protection of good managers already exist in Brazilian state-owned companies.

The subtlety of this problem requires that nobody be blamed. It is necessary a solution to cultural transformation through practical education with effective legislation to support the new behavior. It is clear the gullibility and naivety of those who tend to blame the Government, managers, controllers, or academics who influence the controllers in a techno-bureaucratic bias. There is no one to blame, but the status quo.

Our applied HPTD-M approach to sustainable public management is simple, as a result of dialectic models for the complexity of human phenomena. Hopefully, these HPTD-M concepts can help other

open systems of knowledge as well, such as in sciences, economics, law, psychology, and politics. New viewpoints for governance and internal sustainability could emerge in other countries with similar problems of bureaucracy, with direct implications for the quality of public expenditure.

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## About the Author



**Leonardo Martins da Costa** is currently a Brazilian public servant in the career of Federal Finance and Control Auditor (AFFC) from the Treasury (2009), with an executive MBA in corporate management (2002: FGV 26th), a post-graduate degree in engineering economics (1996: FDC 48th), and a civil engineering degree with emphasis in sanitation (1992: UFMG). Since 2011, the author is an independent researcher on applied transdisciplinarity. The author's framework is in a book, two monographs, and two published articles in Portuguese, besides five published articles in English, from Nov/2021 to July/2022. The latter two formally establish the *Holopraxis Transdisciplinary Management theory* (HPTD-M) through publications in the USA and France. The structure of HPTD-M has been influenced by the holistic transdisciplinarity of UNIPAZ in Brazil and by the author's background as an engineer, business manager, public servant, and public manager.

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