

## **PUBLIC LAW**

### **Quality of public expenditure and transdisciplinarity: Law, economics, psychology, politics and public management<sup>1</sup>**

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#### **Abstract**

*This paper is about transdisciplinarity applied to quality of public expenditure. Transdisciplinary is a paradigm based on the integration and balance of opposite points of view (dualities). "Quality" in business management is an old comprehensive subject. In public administration „quality" should be used in a broader sense. In Brazil, for example, managers and controllers could have more dialogue. Dialectics and harmonization of contradictions are the key words. The main objective of this paper is to confront transdisciplinarity and quality of public expenditure to foresee solutions for quality improvement. The methodology adopted was based on Jungian psychology and on the MBTI System, also in the findings of a research of 2009 made in Italy regarding active and passive waste of public expenditure. In this connection, a scientifically oriented mental and technobureaucrat model leaves managers voiceless, insecure to make decisions, defensive, with no proactivity. This study highlights the implications for this question in the quality of public expenditure. On this purpose, four schematic models are presented: 1) Duality and four elements as troubleshooting requirements – sense, reasonableness, feasibility and rationality; 2) Scheme for Nicolescu's Third Included with a practical example; 3) Disciplinarity, interdisciplinarity and transdisciplinarity in public administration – basically the interaction of Law, Economics, Psychology and Politics; and 4) Quality of expenditure as function of control level – research in Italy shows that only 17% of expenditure waste is due to corruption, most of it (83%) refers to*

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All internet links in the references were accessed on November 15, 2021.

*mismanagement. Furthermore, our 2021 research mentioned in this paper corroborates that quality of expenditure is connected to balance of opposites, as transdisciplinarity itself. Finally, The first 3 models promote discussions for transformation of culture in international public administration, from a rational and scientific bias to a transdisciplinary vision. The findings and the conclusion of this study are connected to Model 1 to 3, useful not only for quality control, but also to promote a paradigm shift in international public administration, in view of the necessity of culture transformation, from the point of view of all actors involved (managers, controllers, politicians and civil society in general). As a cultural conditioning, those actors tend to be very focused on rationality and reductionism of hard skills. The idea is also to promote discussions for transformation of culture and behavior in international public administration, from a rational e scientific bias to a transdisciplinary vision. Hopefully these transdisciplinary concepts and applications may be useful for many countries.*

**Keywords:** *Quality, public expenditure, transdisciplinarity.*

## 1. Introduction

Transdisciplinarity can be presented as an emerging paradigm through dualities, some of them evidenced in *our griffins*. The quotes are to evidence various paradoxes to be solved in transdisciplinary Public Administration (for now referred as PA), Complementarity and dialectics are the basis for PA solutions, after all. This paradigm comes specially from modern physics and Jungian psychology, both very correlated.

<i><u>Simplicity</u> is the ultimate <u>sophistication</u>.</i>	<i>Engineering/Science</i> Leonardo da Vinci
<i>We can't <u>solve</u> problems by using the same kind of thinking we used when we <u>created</u> them.</i>	
<i>The <u>intuitive</u> mind is a sacred gift and the <u>rational</u> mind is a faithful servant.</i>	<i>Physics</i>
<i>We have created a society that honors de servant and has forgotten the gift.</i>	Albert Einstein
<i>[...] splitting this reality into an <u>objective</u> and a <u>subjective</u> side won't get us very far.</i>	
<i>[...] even when an individual tries to attain the greatest possible degree of independence, he will still be swayed by the existing spiritual structures - <u>consciously</u> or <u>unconsciously</u>.</i>	Niels Bohr
<i>One can never reach an exact and complete portrait of reality.</i>	
<i>(Reality is) the continuous <u>fluctuation</u> of the experience as captured by consciousness. In that sense, it can never be identified to a <u>closed</u> system.</i>	Werner Heisenberg
<i>The physics of the twentieth century showed us convincingly that there is no <u>absolute</u> truth in science, that all concepts and theories are <u>limited</u> and approximate.</i>	
<i>The time has come for other <u>sciences</u> to broaden their underlying <u>philosophies</u>.</i>	Fritjof Capra
<i>Untilyou make the <u>unconscious</u> <u>conscious</u>, it will direct your life and you will call it fate.</i>	<i>Psychology</i>
<i>To ask the right question is already half the solution of a problem.</i>	Carl Gustav Jung
<i>Nobody transforms anybody and nobody is transformed <u>alone</u>.</i>	
<i>We transform ourselves in the <u>encounter</u>.</i>	Roberto Crema

Such quotes are from eminent scientists. All of them converge to the principles of transdisciplinary, through the synthetic idea of integration and balance of opposites (dualities) for concrete management solutions. The idea is the integration between specialists and generalists, between the analytical and synthetic methods. Thus, the unity of applied knowledge and the understanding of reality is much more than the intellectual view of the questions. The main transdisciplinary vision - duality - is evident in modern physics, which discovered particle-wave duality at the beginning of the 20th century. Everything has a particle character (something concentrated) and wave (something expanded), even light, which in thesis would be only a wave, but is diverted by gravitational fields due to its particle character (its mass). One character predominates over the other, of course. Considering the light nature, wave character is dominant. This is for non-mechanical phenomena, not predictable by classical physics, the Cartesian paradigm or logic since Aristotle. In human phenomena this dual character is intrinsic. It is something close to platonic philosophy with regard to the theory of ideas, the duality of the world of the senses versus the world of ideas, portrayed in the myth of the cave. By the way, the Greeks invented logic based on mythology as well as the amphitheater (two theaters, the two therapeutic and cathartic forms of the satire, staged in the morning, and tragedy, in the afternoon). Therefore, logic did not appear isolated among the Greeks, it should be seen in the context of symbology, which complements logic for the understanding of the whole reality.

In this connection, the concept of "quality" in business management is an old comprehensive subject, from *Total Quality* as an instrument of constant process improvement to *Quality* as a discipline of business management in a broad systemic sense of human relations. In PA „quality“ should be used in a broader sense, much more than the quantitative indicators of efficiency and effectiveness in management reports.

In this connection, the main objective of this study is to confront transdisciplinarity and quality of public expenditure, so as to foresee solutions for quality improvement. As regards to the Brazilian federal level, internal PA controls have become very close to an independent audit of companies. There is a lack of effective dialogue between managers and controllers, and a dialectical contradiction arises, because the nature of PA controls is more comprehensive than corporate auditing. In that sense, this paper presents four models to highlight the transdisciplinary principles of duality and the four archetypical<sup>3</sup> elements as tools for solutions in quality of expenditure before controls. This text is for managers, controllers, professors and academics in general. From the

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<sup>3</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.

contents presented emerges the need to promote dialectics, meaning dialogue, and the synthetic method, which involve the skills known in the administration literature as „soft skills” (transversal, behavioral skills), to dialogue with the current analytical hypertrophy, rational and technobureaucrat, related to „hard skills” (technical skills), which tend not to exercise the listening of those who know the business in praxis. This applies both to the head managers and the controllers. The need for listening comes from a scientifically focused mental model and an anachronistic technobureaucrat approach, which leaves the managers voiceless, insecure to make decisions, defensive, without proactivity. This paper highlights the implications of this analytic bias for the quality of expenditure, as far as controls are concerned. Also, the idea is to promote discussions for transformation of culture and behavior in international PA, from a rational e scientific bias to a transdisciplinary vision.

## **2. Transdisciplinary methodology**

Nicolescu Third Included may be a transdisciplinary version of dialectics in philosophy. A third included or "hidden third" would be a kind of synthesis from the dialogue of opposites (thesis and antithesis). This view corroborates the Jungian analyst Marie-Louise von Franz in reinforcing that Niels Bohr was the one who would have introduced complementarity into physics. For him, this principle would not be restricted to particle and wave, but also applied to many other scientific areas. He has often referred to the fact that conscious and unconscious complement each other. Bohr would speak of a "profound analogy with the difficulty in the process of formation of human thoughts, which would reside in the distinction between subject and object". [1]

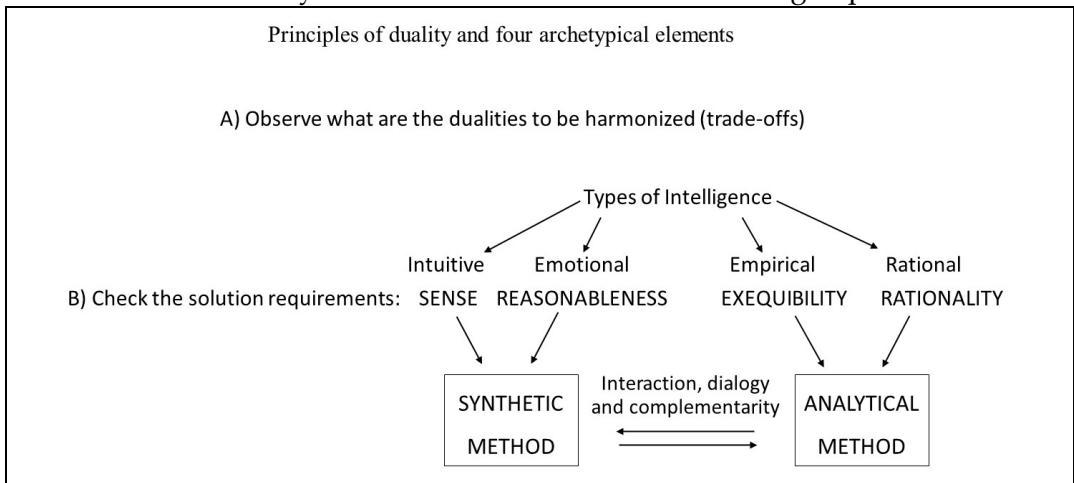
In sociological terms, PA Brazilian Professor Baesso corroborates this view. He gives the example of five people who describe a traffic accident. There will be five versions, according to the perspective of each one, hence the dialectics and the discussion to reach the common good of Aristotle in search of the agreement of different world views. Technical civil servants influence important policy decisions. The politicians are always between technical rationality and public opinion. Finally, the professor asserts that technicians will never have the neutrality that Max Weber and others imagined about rational bureaucracy.[2]

Subject and object can't be separated then. The so-called "exemption" or scientific "impartiality" belongs to rationalists, it does not exist as far as transdisciplinarity is concerned. However, the mechanistic rational view enabled the scientific revolution of the Modern Age, of powerful application to inanimate objects, whose variables are well predicted. At the beginning of the 20th century, with the advent of modern physics and Jungian psychology, this paradigm began to be questioned when applied to complex human phenomena.

In this connection, anthropologist and psychologist Roberto Crema, rector of UNIPAZ in Brazil, teaches that Jungian functions of feeling and intuition make up the synthetic method, while those of sensation and thinking underlie the analytical method. He considers that we can summarize the synthetic method as a necessary and creative response to the fragmentation crisis based, paradigmatically, in a science detached from consciousness, which led the subject to degenerate into an object. In this method is the basis of the generalist. It is a qualitative pathway that is opposed to the quantitative and merely objective approach of the specialist.[3]

To illustrate this need for dialogue or dialectics, the Model 1 scheme was constructed for reflection on how to deal with solutions to managerial problems, when they involve human phenomena, in terms of dualities or polarities and four elements: sense, reasonableness, feasibility and rationality. This model is a result of our conception and developed based on Jung's psychological typology [4] and in the Myers-Briggs Type Indicator system of self-leadership and management - MBTI, which improved the Jungian classification: the four requirements can be correlated to the psychological functions developed by Jung in his psychological types, which is the basis of the MBTI system: dominance of intuition, feeling, sensation or thinking [5]. The four intelligences can also be considered, respectively: intuitive, emotional, sensitive (empirical) and rational.[6]

### Model 1. Duality and four elements as troubleshooting requirements



*Source: adapted from author's research [6]*

Besides, Model 1 shows our vision of transdisciplinarity, which can be as simple as the A) dialogue of opposites, interaction of dualities or dialectics and B)

the integration and balance of the four archetypal<sup>4</sup> elements or principles, respectively: [6]

B1) In **ancient traditions** - earth, water, air and fire (the alchemical four elements).

B2) In **physics** - solid, liquid, gas and plasma (the states of matter).

B3) In **psychology** - sensation, feeling, thinking and intuition (the conscience functions).

This vision of four elements in three approaches (B1, B2 and B3) can be corroborated by Jungian psychology (Franz and Jung himself), considering the correlation of psyche and matter or psychosomatics.

According to Franz, the alchemist Zosimos stated in the 3rd century that the four elements should not be understood in a concrete way; on the contrary, they would be mysterious "centers" or principles present in the matter. Later, they were interpreted as aggregations: all solid matter was considered as "earth", all liquids as "water", all gases as "air" and everything that burned, corroded or burned as "fire".[1]

As far as psychosomatics is concerned, one can also think of the physical and the psychological as a duality and as a whole. In a 1957 interview with psychologist Dr. Richard Evans, Jung made a parallel between the matter of our physical body with the psyche, the latter as a quality of matter, another aspect of matter.[7]

Considering that psychology was separated from philosophy as a discipline only in the end of 19<sup>th</sup> century; even in Plato philosophy these four elements are present, and can be shown in the same sequence of BI to B3 approaches in the divided line A, B, C and D [8] evidenced in *The Republic* [9]:

A - *Eikasia* - sensible appearances (perceiving).

B - *Pistis* - common sense (belief).

C - *Dianoia* - thinking (like in math).

D - *Noesis* - intelligence or intuition (dialectics).

The connection with Jungian functions sounds clear:

A - sensation, B - feeling, C - thinking and D - intuition.

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<sup>4</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.

So, those four elements tend to be shown in archetypical form, that is how came the idea of requirements of feasibility, reasonableness, rationality and meaning, as an insight, it is a conjunction of physics, psychology, philosophy and management.

These concepts can give some clues about how managers and controllers of PA are focused on rational intelligence, often without taking into consideration the reasonableness, feasibility and meaning in the broader context of certain proposed solutions. Therefore, soft skills, related to emotional and intuitive intelligence, have been treated as something less important, but nowadays are empowered in the literature of PA.

Considering the **synthetic method**, including symbology (soft skills), the history of Abraham in The Old Testament can be significant. According to Professor Jordan Peterson<sup>5</sup>, the individuation<sup>6</sup> process involves: i) integration of feeling and thinking in one direction; ii) to turn abstract (intuition) ideas into actions concretely (sensation); and iii) to integrate subject with object. The worst sin is not to commit mistakes, but not to try. The Abraham covenant Is the best solution you have at hand, to go up and down constantly, in the journey of the hero upwards<sup>7</sup>.

Furthermore, in view of the **analytical method**, one can understand separately the four Jungian conscientious functions, connected with the four elements, as follows:

1) thinking with RATIONALITY – that is, the mechanistic and Cartesian view typical of economists and mathematicians;

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<sup>5</sup> Psychology Professor at University of Toronto: <https://www.psych.utoronto.ca/people/directories/all-faculty/jordan-peterson>

<sup>6</sup> Considering Jungian theory, individuation is the process where someone develops out of an undifferentiated unconscious – seen as a developmental psychological process of integration over time into a well-functioning whole. It is different from individualization, because it considers not only the subject (internal environment), but also the integration of the object (external environment). This idea can be extended to organizations that need to balance the internal and external environment, meaning not being self-centered as in the strict technobureaucracy, in order to achieve its goals.

<sup>7</sup> In this lecture The Call to Abraham, of August 1, 2017, Professor Peterson tells the story of Abraham, who heeds the call of God to leave what was familiar behind and to journey into unknown lands. The man portrayed in the Bible as the father of nations moves forward into the world. He encounters the worst of nature (famine), society (the tyranny of Egypt) and the envy of the powerful, who desire his wife. There is nothing easy about Abraham's life. Instead, he is portrayed both as a real man, with serious problems, and a hero, who overcomes tremendous obstacles to establish himself in the world. Lecture available at: <https://www.youtube.com/watch?v=GmuzUZIJ0GA>

2) feeling with REASONABLENESS – reasonableness is a principle widely used in Law to assess whether something is acceptable or not, it is a function of judgment complementary to rational thinking;

3) sensation with FEASIBILITY – many engineers and administrators tend to solve problems in a concrete way, not necessarily rationally understanding how the best solution works, the focus is empirical; and

4) intuition with MEANING – it is the sense that entrepreneurs, managers, police investigators, politicians, religious leaders and alike seek in certain solutions, envisioning the processes in a broader aspect, especially when there are no complementary rational and empirical arguments to help in diagnosis. It may even overcome RATIONALITY if the perception of meaning is too strong.

### 3. Examples in Economics, Law and Administration

A) **Economics:** policy models may be rational, but not reasonable and feasible, in the sense that could bring an intolerable burden to society. Moreover, there may be a dialogue between reductionist quantitative econometric models (objectives) and the psychology of the expectation of economic agents (subjective).

✓ RATIONALITY of planning tends to predominate over feeling: REASONABLENESS that makes decisions.

B) **Law:** it is a good example of the pure literal interpretation, merely formal, not reflecting the spirit of the law, the intention of the legislator at the end. For example, in Brazil the excess of written legislation is often not sufficient for the solution of concrete cases, demanding a more sophisticated interpretation, and it is necessary to resort to analogies with other laws, general principles of law, or even uses and customs. Reductionist literalness tend to prevail today in various instances of supervision and control of public management in Brazil: no intimacy with the systemic view of the business or the core business of the institutions:

✓ sensation - FEASIBILITY of bureaucracy tends to predominate over feeling - REASONABLENESS that makes decisions.

Still as for the Law, it is up to the discussion of RATIONALITY and REASONABLENESS. The concept of REASONABLENESS is linked to the adequacy, among other things, given by subjective judgment, such as the „Solomonic wisdom” and the experience. However, some lawyers may understand wrongly that the idea of reasonableness has more to do with what is considered rational. For example, every decision is made by feeling, judgment of adequacy, „wisdom”, acceptability or feasibility – REASONABLENESS, not thinking - RATIONALITY. The two terms tend to become formally synonymous for the reductionists, but in the psychological essence they are not. This is an issue related to the Model 1:



✓ REASONABLENESS involves adequacy from the human aspect. The scientist and the reductionist do not take into account the human aspect, only the RATIONALITY of mechanisms, as if people were robots, something that does not work with not very predictable processes. REASONABLENESS is subjective in this model. In a lawsuit the magistrate will decide based on concrete information, without political or ideological bias in theory, but everything is relative. Not necessarily the subjectivity will be in ideological terms, although it may happen unconsciously even in a good will, experienced and competent magistrate.

For example, someone suffers an accident and has his brain injured in the region of emotions. He loses the ability to decide, that's scientific. If a magistrate suffered this type of accident, he could no longer judge, but he could discuss and analyse things deeply, but without being able to choose between one option. That is the subjective nature of reasonableness. Everything is relative, in the end, subjectivity is intrinsic to the decision-making process of judgment. Even the form of the sentence will not be the same, among different magistrates, opinions and judgments can be different.

C) Administration (in general): opposition between the functions of sensation (bureaucracy) and those of intuition (innovation), functions that must be balanced for management optimization. Currently in Brazil there is bureaucratic excess, especially controls before management discretion, which constrains initiatives for innovation. Moreover, nowadays managers do not have any incentive or form of recognition to exercise their creativity and to take initiatives that can be advantageous for the PA as a whole. The bureaucracy is necessary to stablish process standardization, but it can't be used as punishment or embarrassment to any kind of innovation, as in Brazil nowadays. If bureaucracy prevails:

✓ sensation - FEASIBILITY of bureaucracy tends to predominate over intuition - SENSE in the broader context that can be creative and innovative.

#### **4. Disciplinarity and transdisciplinarity - Third Included**

About disciplinarity, multidisciplinarity, interdisciplinarity and transdisciplinarity, for Nicolescu there is a fertile complementarity between disciplinarity and transdisciplinarity. [10], there is no one without the other:

✓ **Disciplinarity** - only one discipline is contemplated in decision-making at the management level through a specialist.

##### **Isolated disciplines.**

✓ **Multidisciplinarity** - several disciplines that do not interact with each other, as in a meeting of several specialists who do not interact with each other, each one manifests their specific knowledge. In summary: it is related to the study of several disciplines at the same time, but without interaction between them.

##### **Multi = several.**

✓ **Interdisciplinarity** - there is interaction and exchange of information between one discipline and another through meetings between specialists and managers. In summary: transference of methods from one discipline to another, with the possibility of creating new disciplines. **Inter = between.**

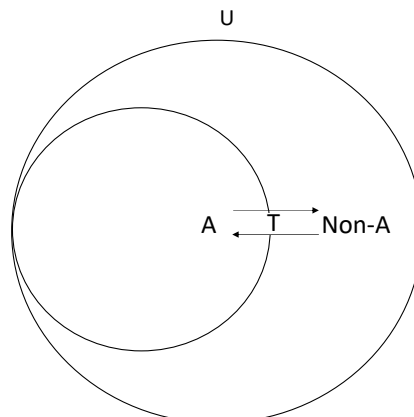
✓ **Transdisciplinarity** - goes beyond disciplines, its objective is effective understanding, for which one of the imperatives is the unity of knowledge; there is no contradiction between disciplinarity (including multidisciplinarity and interdisciplinarity) and transdisciplinarity, but a necessary complementarity through the dialogue; it is about the articulation between generalist managers and technical specialists to reach the best solutions effectively. The goal is to understand reality as a whole.

**Trans = beyond + through.**

So, **disciplinarity** tends to be related to **rationality**, appropriate to mechanical phenomena of very predictable variables, and **transdisciplinarity** is prone to be applicable to complex human phenomena: **rationality, reasonableness, feasibility** and **meaning** in the broad context. For this reason, one approach helps the other, it will depend on the concrete case the most effective paradigm to be applied, including the cost and benefit considering the circumstances.

In this connection, Model 2 presents the Third Included in a schematic way, an application of transdisciplinarity. Suppose the universe "U" is formed by "A" and „Non-A". For mechanical phenomena, in linear logic, if something is "A", it cannot be „Non-A". However, for human phenomena, there is a third included "T", which can be "A" or „Non-A", simultaneously or in oscillation, depending on the circumstances.

### Model 2. Nicolescu's Third Included



Source: adapted from author's research [6]

Example of application: in political ideology, there are "A" who defend a hypothetical government and „Non-A" opponents. For those two, who have personal preference as reference, it will be difficult to understand the "T", sometimes in favor, sometimes against, if the paradigm is another, for instance, a good public management that has nothing to do with ideology, necessarily. The transdisciplinary vision of government, for example, can be a „T". Therefore, "T" can't be understood as "A" or „Non-A" by „Non-A" or "A", respectively, just because it is in the opposite pole, even if momentarily or not definitively. Therefore, the "A" and „Non-A" tend to have a mistaken view of the nature of the "T", especially if they do not understand the paradigm of "T".

### 5. Systemic paradigm as transition to transdisciplinarity

The man of the Modern Era, since the 18th-century Enlightenment, is dominantly guided by the sciences, by the Newtonian paradigm and the mechanistic Cartesian way. The subject was degenerated into an object, creating a dysfunction regarding human phenomena, treated as mechanical. However, at the beginning of the 20th century modern physics (quantum and relativistic) broke this reductionism, parallel to Jungian psychology. Physics discovered particle-wave duality (something concentrated and expanded in space at the same time), including the difficulty to separate subject and object, while Jungian psychology evidenced conscious-unconscious duality, in addition to subject-object duality corroborated by physics.

Among the heralds of broader paradigms stands out Fritjof Capra, who developed a form of systemic paradigm beyond mechanism, in a very didactic and scientific way, as a doctor in physics and researcher. In the late 1970s, Capra initially relied on the parallels between modern physics and the ideas of duality in Eastern philosophies, especially Taoism. Already in the early 1980s, Capra recognized Jung's psychology as the closest to modern physics [11], with the collaboration received from Jungian von Franz, and developed his systemic paradigm based on replacing the focus on the object with processes, relationships and homeostatic feedback from living systems. Capra also highlights the holistic and ecological view, also becoming a theoretical reference of a broader view in the general administration in the 1990s, as well as models for environmental sustainability and ecoliteracy [12].

Capra is restricted to the scientific field, if compared to the transdisciplinary point of view, which goes beyond systemic paradigm by transiting through the four epistemic forms<sup>8</sup>: Unlike the scientifically oriented Freud, Jung moved

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<sup>8</sup> Ways of understanding reality through the four basic disciplines. Considering also de MBTI system and Jung's psychology, the following scheme can be designed:

through Greek and Eastern philosophies, as well as through various traditions, such as Hermetic, Gnostic and Alchemical. Perhaps that's why his personal break up with Freud. After all, psychoanalysis (Freudian) and analytical psychology (Jungian) are complementary and depend on the profile of those under therapy.

As a didactic form of transition to transdisciplinarity, Capra's *The Turning Point* can give an excellent perspective to those most connected to the scientific method, as a facilitating instrument of later understanding the transdisciplinary sphere, specially the necessity of cultural transformation in order to overcome the Newtonian and Cartesian paradigm as the mainstream way of portraying reality.

In this sense, according to Weil, Crema and D'Ambrosio, there are four main disciplines: **technoscience, philosophy, tradition and art.** [13]

It sounds promising to show a timeline with milestones of transdisciplinary for PA:

### Some milestones for transdisciplinarity in PA (including papers in English)

#### 1st half of the 20th century - Modern physics and Jungian psychology

Science is based on principles of duality: i) quantum physics: particle-wave; ii) relativistic physics: matter-energy; iii) Jungian psychology: conscious-unconscious, everything analogous to the nature of something concentrated and expanded at the same time.

#### 1982 - Systemic paradigm

Capra (Dutch physicist) *The Turning Point*, book based on the systemic paradigm in science, but already lays transdisciplinary bases concretely. [11]

#### 1987 - Transdisciplinary paradigm and establishment of CIRET

Nicolescu (Romanian physicist), D'Ambrosio (Brazilian mathematician) and Morin (French anthropologist) created the CIRET - International Center for Transdisciplinary Research in France<sup>9</sup>.

Discipline	MBTI features	Jung's Functions
Technoscience	concrete + objective;	sensation + thinking;
Philosophy	objective + abstract;	thinking + intuition;
Tradition	abstract + subjective;	intuition + feeling;
Art:	subjective + concrete.	feeling + sensation

<sup>9</sup> The International Center for Transdisciplinary Research (CIRET) is a non-profit organization, located in Paris and founded in 1987. The aim of the organization is to develop research in a new

**1987 - Holistic transdisciplinary paradigm and establishment of UNIPAZ**

Weil (French psychologist) and Crema (Brazilian psychologist) created UNIPAZ in Brasília, Brazil, with the support of the DF state government in Brazil<sup>10</sup>

**1993 -** Weil and Crema from UNIPAZ together with D'Ambrosio from CIRET publish a book in Brazil about transdisciplinarity and open systems of knowledge. [13]

**2005 -** Paper from Romanian physicist Nicolescu regarding transdisciplinary theory [14]

**2005 -** Paper from Chilean economist Max-Neef on transdisciplinary principles [15]

**2013 -** Paper from Romanian engineer and PA professor Nita [16].

**2017 -** Paper published in South Africa (Uwizeyimana) – African Journal of Public Affairs [17]

Besides those references in English, there are three more which deserve some attention, applied to Psychology, to Law and to Politics, unfortunately available only in Portuguese:

**Additional historical references of transdisciplinarity (papers in Portuguese)**

**2010 -** Psychology (Crema, Brazilian anthropologist and psychologist, rector of UNIPAZ) [18]

**2010 -** Law (Wiviurka, Brazilian Law professor) [19]

**2019 -** Politics (Viparelli, Italian professor at Évora University in Portugal) [20]

**6. Areas of PA from a transdisciplinary perspective**

Transdisciplinary management can be seen as the balance between four major areas. This author developed a mapping based on the South African paper,

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scientific and cultural approach – the transdisciplinarity – whose intention is to lay bare the nature and characteristics of the flow of information circulating between the various branches of knowledge. The CIRET is a privilege meeting-place for specialists from the different sciences and for those from other domains of activity, especially educators. Site access (in English): <https://inters.org/websites/CIRET>.

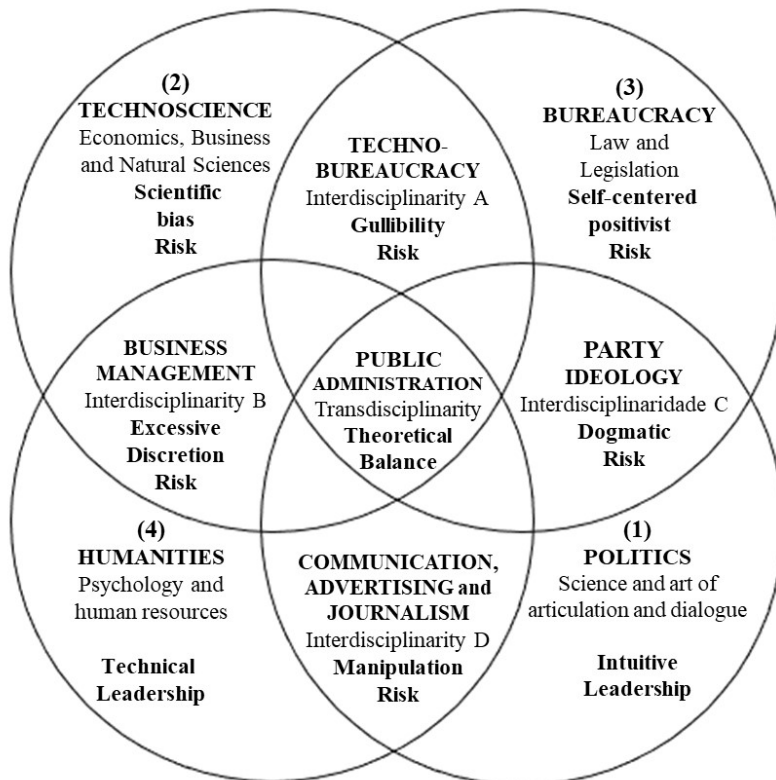
<sup>10</sup> Governor José Aparecido assigned the public *Granja do Ipê* property for this purpose, an area very close to the Brazilian capital Brasília. UNIPAZ It is a non-governmental, non-profit organization, declared a Federal Public Utility agency. It was created to develop specific and inter-related projects related to the culture of peace, based on the holistic view and the transdisciplinary approach. Site access (in Portuguese): <https://unipaz.org.br/>.

in which Figure 1 there are twelve disciplines to gravitate around public PA in the center. The four closest to the center are, 1) politics, 2) economics, 3) law and 4) psychology. The four major groups can be considered as: [6]

- 1) **politics** – not to be confused with party ideology;
- 2) **technoscience** – including economics, administration and natural sciences;
- 3) **bureaucracy** – law and legislation; and
- 4) **humanities** – including psychology.

In this context, a view of the control hypertrophy is far from a management of excellence in terms of the quality of public expenditure, both in the perspective of the manager and of the controller, because only rational issues and processes standardization do not solve broader problems of public management in terms of transit between the various disciplines that interact with each other, as a whole.

### Model 3. Disciplinary, Interdisciplinarity and Transdisciplinarity in PA



Source: adapted from author's research [6]

Transdisciplinarity is at the intersection of the four circles or groups of disciplines. It is possible to identify in the Model 3:

- i) disciplines 1, 2, 3 and 4;

- ii) interdisciplinarity A, B, C and D at the intersections between each two disciplines;
- iii) the risks of each disciplinarity and interdisciplinarity, if not treated as a whole transdisciplinarity;
- iv) the resulting **management styles** (scientific, techno-scientific, bureaucrat, technobureaucrat, business, partisan and communicator) and **two types of leadership**, technical and intuitive, in the field of humanities and experience in politics, respectively.

As for the resulting management and leadership styles:

- a) **scientific manager**: does not consider the interactions between technique and science, or the inductive (empirical) and deductive (rational) method, meaning the feedbacks of practice and theory – risk of scientific bias;
- b) **technoscientific manager**: although it takes into account the feedback between the empirical and rational method, ignores the law and legislation, with such a scientific approach – risk of reductionism, an aspect of scientific bias;
- c) **bureaucratic manager**: believes that law and legislation should always prevail, but does not consider the difference between rationality and reasonableness, especially the issues involving the feasibility and quality of expenditure in concrete terms. There is inherent self-centered view without concern for reasonableness– risk of self-centered positivism;
- d) **techno-bureaucrat manager**: although it seeks to balance technoscience and bureaucracy, it can fall into the trap of "exemption" or strict objectivity, by disregarding the human and political factors of management. This type of manager can project in third parties personal ideologies, a psychological Jungian phenomena expressed by the concept of „shadow“<sup>11</sup>. In short terms, psychology and politics are very important instruments for management – risk of guillability;
- e) **business manager**: coming from the private sector, may not have the ability to listen to the peculiarities of the public sector, if he is not willing to adapt himself to the complex managerial paradigm of the public sector, much more difficult than the private one. This type of manager does not consider the bureaucracy of the public sector, in which one can do only what the law allows (specially in Brazil). In addition, the private sector manager initially has some difficulty in understanding the negotiation processes of the public sector, inherent in both bureaucracy and the various actors involved, which do not exist in the private sector – risk of excessive discretion.
- f) **party manager**: guided by ideologies, consciously or unconsciously. If unconscious, it can project its ideologies in third parties, in negative interaction

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<sup>11</sup> In Jungian psychology, the „shadow“ may refer to an **unconscious aspect of the personality which the conscious ego does not identify or does not accept in itself**. In short, the shadow is the unknown or the rejected part of someone.

with the technobureaucrat type, which can also unconsciously project his ideologies – risk of dogmatism.

g) **communicator manager**: it is based on interactions with its peers, as well as with internal and external actors to management. If you have a more opportunistic or adventurous psychological profile, you may run the risk of becoming a marketer without substance, promoting yourself depending on others – risk of manipulation.

h) **technical, analytical leader**, based on organizational logic (**hard skills**).

i) **intuitive, synthetic leader**, based on feeling, insights, improvisation (**soft skills**).

j) **transdisciplinary manager and leader**: promotes listening and transit between specialists and generalists, taking into account aspects of technoscience, bureaucracy, psychology and politics in concrete terms. Transdisciplinary management and leadership **naturally tend to balance the opposites**, aiming at best solutions.

## 7. Quality of expenditure as a function of control level

A analytical approach is based on a study conducted in Italy [21]: **active waste (corruption)** implies direct or indirect benefit to the decision-taker; **passive waste** – 83% of the estimated total – does not imply benefit to the decision-taker and involves:

- i) no ability to minimize costs;
- ii) no incentive to minimize costs; and
- iii) excessive regulatory burden (increase in fixed costs).

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

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

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

As far as PA is concerned, Brazil is a very peculiar country, because civil servants are technically very well prepared, but there are circumstances that are terrible for quality of expenditure:

- 1) statutory law (excess of written legislation);
- 2) small margin of discretion for managers;
- 3) legislation with no incentive for innovation;
- 4) excess of controls and analytical method as a predominant paradigm (only hard skills are stimulated).

In this aspect, a simple equation can be made to evidence the problem of these two contrasted variables, active waste (corruption) and passive waste



(mismanagement). It is necessary to evaluate compliance and control instruments regarding: i) reasonableness – in a broad sense, acceptability and feasibility; and ii) the cost and benefit for the effective quality of the expenditure. In numbers: [6]

- ✓ 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  $\sim 0.17x + 0.83y$ .

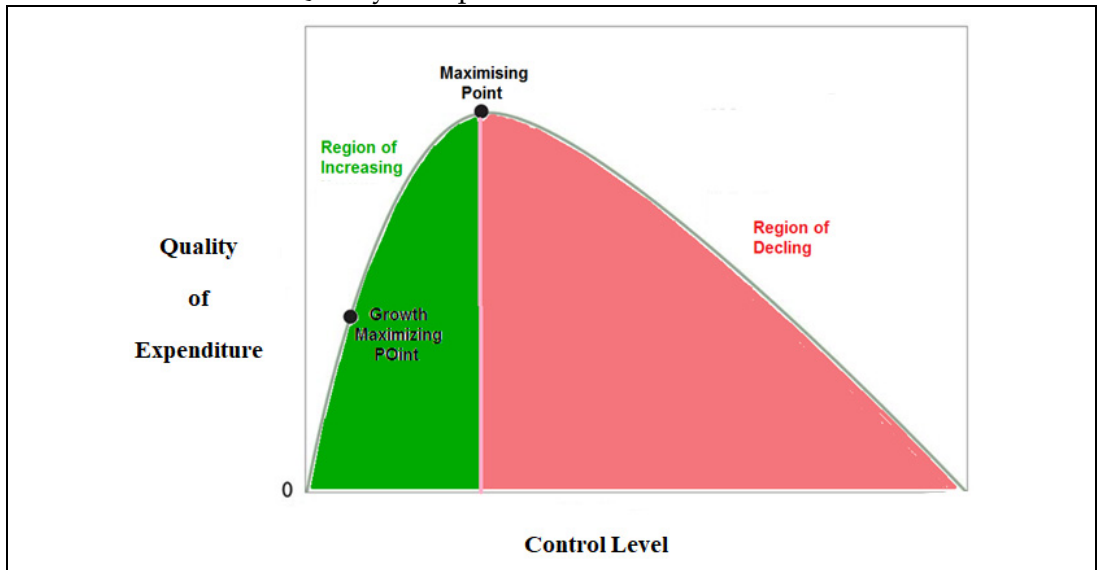
Hypothetical example:

- ✓ 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 in 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 and embarrassment of managers in the PA, resulting in mismanagement. However, It should be emphasized that the loosening of the fight against corruption is not defended here, but a systemic criteria for action, taking into account the balance of feedback on the defensive behavior and inertia of good will managers.

In our opinion that is a bottleneck of the problem of quality of public expenditure in Brazil, in view of the excess of bureaucracy together with controls, without taking into account the negative effect on the proactivity of managers.

#### Model 4. Quality of expenditure as function of control level



Source: adapted from author's research [6]

Finally, as a complementary and synthetic approach to the numeric example, Model 4 shows a theoretical point that maximizes the quality of expenditure versus the level of control. It was conceived based on an analogy with de Laffer curve (collection as a function of tax rate). This is a complementary point of view. Given the hypertrophy of controls in Brazil and the lack of exercise of the already limited discretion provided by the legislation, the challenge arises. Managers are insecure to make decisions, defensive, without proactivity. Negative effects on the quality of public expenditure draw attention to incentive proposals that allow managers to act effectively.

This analytical and synthetical approach was confirmed in 2021 on this author's monograph showing results of a research that took two years, unfortunately only available in Portuguese (Abstract available in English). The quality of public expenditure has been a hot topic, especially in the context of a great fiscal restriction. This author was invited at the end of 2020 by the Ministry of Economy in Brazil to engage in a panel regarding a „corrupt-centrism” approach and the pursuit of efficiency. The status quo has been promoting (even if in a non-intended way) an adverse selection of public managers. The objective of the monograph was to discuss the quality of expenditure from the point of view derived from arguments with managers, controllers, and academics held in the second semester of 2020 and in the first half of 2021, considering a transdisciplinary approach. Eight manifestations of current and former public managers reveal an environment of embarrassment, insecurity, lack of motivation, and fear of personal accountability. In May/2021 Professor Baesso from National School of Public Administration (Enap), in Brazil, corroborated the understanding that managers are under pressure, with the impression that their decision-making power is constrained, and that dialectics is an important instrument for the solution. In addition, a 2020 master's thesis from a public server from the internal control federal institution (CGU) concludes, based on a survey sample with 277 of the 1,054 employees who audit federal servers by the CGU: 67% of these auditors prefer didactic approaches and 33%, repressive approaches. This result shows that the embarrassment of managers is apparently not arising from an individual initiative of the CGU auditors. In turn, the controllers of the State of Minas Gerais and of the municipality of Belo Horizonte have achieved positive results with *pari passu* audits, gaining trust of managers through the focus on guidance, not by punishment. On the other hand, at the federal level audit is *ex-post*. Three manifestations of controllers tend to indicate a scientifically oriented and bureaucratic bias - practically disregard the eight reports of managers. Nor do they mention dialectics as a key issue or the way to fight corruption and its possible feedback to mismanagement when not accordingly evaluated. Four other statements of controllers go in the opposite direction of the first three ones,

as they seem to see 1) cultural transformation in process design and 2) as the control bodies become „superheroes“, starting from the idea that all managers are supposed to be corrupted. It is a necessity to put forward proposals to solve this bottleneck in the quality of expenditure through dialectics among managers, controllers, academics and legislative advisors. Among others, two measures are essential: i) top down approach – change in legislation (art. 28 of LINDB – a Brazilian law) and support managers with instruments such as D&O, statutory protection (as in some state companies) and ii) bottom up approach: promotion of cultural and behavioral transformation – development of the management paradigm through short-term training to managers and also to controllers, as well as encouraging postgraduate courses with a more managerial focus, not only academic.[6]

## 8. Conclusions

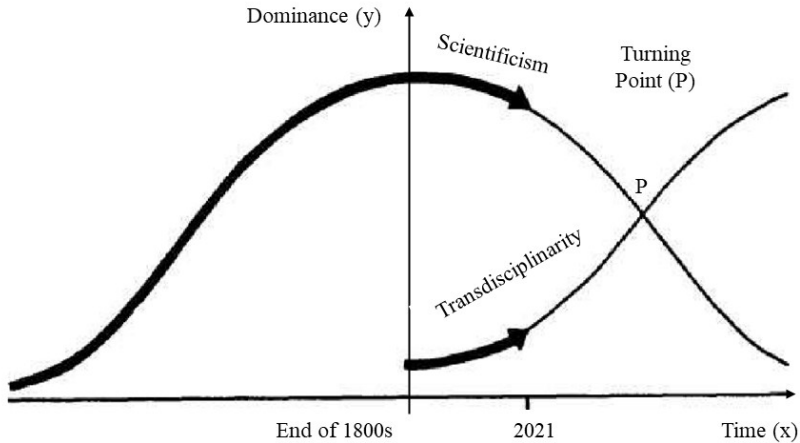
The 2021 above mentioned research leaves no doubt. Quality of expenditure is connected to balance of opposites (dialectics), as transdisciplinarity itself. In our research, two opposites are evident: 1) fight against corruption versus 2) resulting mismanagement as negative feedback. Cost and benefit of controls must be considered, otherwise the net result can be negative

The essential problem is the polarization regarding control, rationalism, technobureaucracy and the analytical method, as seen in the quantitative analytical approach of section 7 and also in the synthetic vision of Model 4. Besides, Model 3 can produce some insights in order to treat the question of rationalism showing disciplinarity, interdisciplinarity and transdisciplinary PA. Model 2 shows how the necessity to balance opposites in order to achieve effective solutions in terms of reality comprehension. Model 1, by its turn, is a reference for trouble solving in PA, considering the balance of duality and the criteria of meaning (sense), reasonableness, feasibility and rationality.

Finally, Model 1 to 3 are useful not only for quality control, but also to promote a paradigm shift in international PA, in view of the necessity of culture transformation, from the point of view of all actors involved (managers, controllers, politicians and civil society in general). As a cultural conditioning, those actors tend to be very focused on rationality and reductionism of hard skills.

Also, the idea is to promote discussions for transformation of culture and behavior in international PA, from a rational e scientific bias to a transdisciplinary vision. Hopefully these transdisciplinary concepts and applications may be useful for many countries.

In this sense, a graphic taken from Capra [7] was adapted to transdisciplinarity and may provide some insights:



Source: adapted from Capra's book *The turning point*. The horizontal axis from 1800s to 2021, as well as the terms "Dominance", "Scientificism" and "Transdisciplinarity" are insights from this article, not from Capra, who defends the systemic paradigm.

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