How to Deal with the Unthinkable of World Transformation: The Purpose of a TD Chair

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Abstract
The world is facing a complex polycrisis, encompassing environmental, geopolitical, and socio-economic challenges. These crises are interconnected, reinforcing each other and creating an unpredictable global transformation. Traditional disciplinary approaches are inadequate for understanding this polycrisis; instead, a transdisciplinary analysis is necessary. This article outlines the components of the polycrisis, emphasizes the need for transdisciplinary methods, and explores strategies for dealing with the unforeseeable future. It argues for moving beyond predictable frameworks and adopting new mental models to navigate the complexities of global change.

Keywords: *polycrisis, transdisciplinary analysis, global transformation, unpredictability, socio-economic challenges.*

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1. Introduction

The world has entered a time of crisis. These crises can be seen at several different levels: that of humanity in relation to the planet, that of the West in relation to the rest of the world, that of the State in relation to the population, and finally that of employers and each of us. We can speak of a time of crisis in the

sense that it does not involve a modification of the system such that it would roughly return to equilibrium after a period of integration of external noises[1], but that it most probably involves a transformation with an unpredictable outcome, which could consist of its disintegration or its reorganization at a higher level of complexity.

It's important to note here that these crises are of different natures are of unequal scope and take very different forms, but that they interfere with each other and reinforce each other, so that overall they constitute a "polycrisis". This polycrisis cannot be analyzed using the same means as those used to analyze its individual components. It calls for another level of investigation and understanding, one that goes far beyond the scope of each of the disciplines through which we seek to apprehend the world. We would therefore say that this mode of understanding comes under the heading of transdisciplinary analysis, which needs to be presented and defined beforehand.

If the contemporary polycrisis represents a genuine transformation of the world in which we live, it follows that we cannot know what will become of it or what it will consist of tomorrow. We therefore need to prepare ourselves for the unforeseeable, and to do so, we must first rid ourselves of the predictable, which in such a context comes to constitute a confinement in certainties that are already in the past. As Thomas Aquinas puts it, "We must not conceive that the beings of nature are distinct in the same way as the logical abstractions that are part of our way of understanding"[2]. If we want to continue to understand "the beings of nature" and eventually exert some influence on them, we must therefore get rid of our way of blinding ourselves.

Starting from a very global level, this problematic must bring us back to the local level of our more immediate and very concrete preoccupations, the treatment of which cannot, however, be conceived correctly, if the above is right, by neglecting the context in which they are situated. A few precepts of mental hygiene may help us to do this, as we have already explained what this transformation of the world consists in.

Hence the plan adopted here:

- the components of the polycrisis,
- the need for transdisciplinary analysis,
- how our future is rigorously unpredictable,
- how best to deal with the unpredictable.

2. Inventory of Polycrisis Risks

An inventory should be complete, but in this case it cannot be, for the very reason that it comes up against the impossibility of imagining the future

[1] Henri Atlan, *Entre le cristal et la fumée, essai sur l'organisation du vivant,* Le Seuil, 1979.
[2] Thomas Aquinas, *Summa Theologica*, I, qu.76, a.3, Christian Classics, 1948.

beyond what we can conceive of in the world as it is, and as it may already belong to the past. It's like an equation with multiple variables. Nevertheless, a certain number of facts, which are already visible - and which would undoubtedly be of an anecdotal nature if they were to remain isolated - are of such a nature as to attract our attention, either by their novelty, or by their multiplication in relation to what seemed to us to be "the order of the world". I'll be borrowing from the book published by Eric Carrey and myself, "Après la guerre contre la COVID, de l'économie financière à l'entrepreneuriat social", in which each of these risks is developed at some length. A point of clarification is in order here: having been published in a book dated 2021, it was drawn up in the course of 2019, and the order of presentation has not been altered in the version that follows. The reason for this is understandable, and the increasing acuity of some of these risks confirms the relevance of mentioning them:

1. *Environmental risks*
2. *Appearance of pandemics*
3. *Major atomic accident*
4. *Collapse of the state*
5. *False prophets multiply*
6. *Unexpected and sometimes irrational movements*
7. *Increased verbal and physical violence*
8. *Shaking up traditional identities*
9. *Large population movements*
10. *Anarchic development of violence*
11. *Development of shortages*
12. *Looking for scapegoats*
13. *Local collapses*
14. *More and more de facto situations*
15. *Growing daily insecurity*
16. *Development of mafia groups*
17. *Development of rumors and* fake news
18. *Confrontations between collapsed states*
19. *Rise of communitarianism*
20. *Increasing number of industrial and commercial wastelands*

It goes without saying that these different risks are all interrelated. It is therefore not possible to treat them independently of one another, and the analysis procedures that would apply to one risk will not apply to another. On the other hand, the very interferences between one risk and another need to be taken into consideration. It is therefore permissible to speak of "polyrisks" as a factor in the polycrisis we are currently experiencing, and which is arguably only just beginning. This requires us to adopt a perspective that cannot be limited to an academic approach restricted to a single field of reality, or even to an interdisciplinary or multidisciplinary approach. We therefore call for a transdisciplinary approach,

as formulated by Bassarab Nicolescu[3].

3. The Need for Transdisciplinary Analysis

What is the transdisciplinary approach? To understand it, it's important to remember that Bassarab Nicolescu spent his career as a quantum physicist at the CNRS. Physicists are at the origin of a revolution in thinking. About a century ago, they were confronted with a reality that was beyond their comprehension. With some instruments, the electron appeared as a corpuscle, while with others, it appeared as a wave function. Added to this was the fact that the same electron could not be observed simultaneously by two different instruments. Classical logic would have dictated that they should appear either as a corpuscle or as a wave, but not both.

After much trial and error, physicists had to go beyond the logic they had inherited. Bernard d'Espagnat[4] came to evoke a "veiled reality", beyond the image we have of it. But it was probably Bassarab Nicolescu, inspired by the philosopher of science Stephane Lussato[5], who came up with the most accomplished solution. To assert that a is contradictory to non-A, he says, is to be situated at a certain level of reality. But at another level of reality, A and not A, far from being mutually exclusive, can be compatible in a more global affirmation. We'll call this overcoming of the binary logic of the "excluded third" the "logic of the included third". The three principles of what will come to be known as "transdisciplinarity" are as follows:

- principle of the included third, as opposed to the principle of the excluded third, falsely attributed to Aristotle,
- the existence of different levels of reality from the one we are familiar with,
- principle of complexity, as the different parts of reality only exists through the relationships they maintain with each other, whether at the same level of reality or at different levels of reality.

  This logic can be expressed as follows:
  - A is A (identity principle)
  - A is not A (exclusion principle)
  - A and non-A are not mutually exclusive (including third parties).

Here, it's worth noting that such logic is not absolutely new, even if it challenges the postulates of positivist science inherited from the last century. Aristotle, to whom the principle of exclusion is wrongly attributed, reconciles Heraclitus and Parmenides by describing motion as follows: everything in motion is maintained and not maintained at the same time. Form remains even if substance

[3] Bassarab Nicolescu, *Nous, la particule et le monde*, Le Mail, 1985; Bassarab Nicolescu, What *is reality?* Liber, 2009.
[4] Bernard d'Espagnat, *Penser la science ou les enjeux du savoir*, Dunod, 1990.
[5] Stéphane Lupasco, *L'énergie et la matière vivante*, Le Rocher, 1987.

changes. Substance changes, but the form remains. What I will be tomorrow already potentially exists in what I am in the act. What I will be tomorrow will then exist in the act, and what I am today will be reduced to the potential state corresponding to another moment in time. The Stagirite thus appeals to this passage of time, reconciling Parmenides's vision of being with Heraclitus's vision of movement:

Each thing, necessarily, is or isn't, will be or won't be, and yet if we consider these alternatives separately, we can't say which of the two is necessary. Let me give you an example. There will be necessarily a sea battle tomorrow, or there won't be; but it's not necessary for there to be a sea battle tomorrow, any more than it's necessary for there not to be one. But whether or not there will be a sea battle tomorrow, that is necessary"[6].

This is what we call "hylomorphism": to be matter and form, to be and not to be at the same time, to be both in the act and in potential. This is what allows us to assert that "myself is another" (Ricoeur). Western logic is therefore not limited to the "yes or no" dilemma. But it's worth adding here that the Greek philosophers were probably well aware of Eastern wisdom, and in particular of the debates taking place in India. So here's what Nagarjuna (2/3ème century CE) says in his "Treatise on the Middle"[7] , part of the Perfection of Wisdom Sutras (*Prajnaparamita*):

- Everything is true (or) not true
- True and untrue
- Neither true nor untrue
- This is the Enlightened One's teaching.

The principle of the inclusive third is thus to be found in the Buddhism of the Great Vehicle (Mahayana). The great contemporary Japanese philosopher Yamauchi Tokuriû[8], however, modifies the order as follows, the third lemma being, he observes, the condition for the fourth:

- True
- Not true
- Neither true nor untrue
- True and untrue.

Nicolescu's trilemma was already contained in Nagajuna's quadrilemma. We can see from this that the dilemma on which our logic is based is by no means a universal principle that it is localized and dated, and that quantum physicists will therefore have been justified in abandoning it in their understanding of the phenomena they were led to attempt to explain. And of course, this transdisciplinary logic can be transposed to many other fields of reality. Such is the case with

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[6] Aristotle, *Peri Hermeneias*, https://isidore.co/aquinas/english/PeriHermeneias.htm. Thanks to Mariana Thieriot-Loisel, who brought this passage to my attention.
[7] Nagarjuna, *Traité du Milieu*, tr. Éditions du Seuil, col. Points Sagesses, 1995.
[8] Yamauchi Tokuriû, *Logos et Lemme, pensée occidentale, pensée orientale*, translated by Augustin Berque, CNRS Editions, 2020.

polycrisis and polyrisk situations. These cannot be dealt with through "interdisciplinarity" or "multidisciplinarity". Interdisciplinarity" means using the methods of a neighbouring discipline within the framework of a given discipline; "multidisciplinarity" means examining the same object from the point of view of different disciplines; but both are at the same level of reality, unlike "transdisciplinarity".

4. How our Future is Rigorously Unpredictable

In the passage quoted above, Aristotle uses the example of a naval battle that may or may not take place tomorrow. Can we know in advance? The answer to this question is negative. We can formulate hypotheses based on certain pieces of information, imagining different possible scenarios, but we can't say for sure. We must think of this:

- the future is not determined; otherwise history would not exist,
- it can only be conceived in the terms in which we think of the world today, and which tomorrow may give way to a completely different axiomatic, taxonomy and praxeology - we'll come back to this in a moment.

Polycrisis can thus lead to a dynamic whose outcome could be totally unexpected. The risks it represents are therefore not measurable. But to understand it, we need to understand how the transformation it leads to is situated beyond, or at a different level of reality from, what results from the juxtaposition of partial changes or innovations. To understand this, we call on two analytical tools:

- on the one hand, the distinction between type 1 and type 2 changes, borrowed from Gregory Batteson, and which is too well known to be developed here;
- on the other hand, Karl Popper's ternary ontology, which he presents as follows: "We can call the physical world: 'world 1', the world of our conscious experience: 'world 2', and the world of the logical contents of books, libraries, computer memories and so on: 'world 3'"[9].

Apart from partial changes (e.g. the transition from an internal combustion engine-driven vehicle to an electric vehicle) that leave the entire system intact, a Type 2 change results in a global transformation of the system. And this system can either disappear as an organized system, or reconstitute itself, after integrating "noises" from the outside, according to different organizational principles. These principles of organization, however, do not only concern Popper's "world 1", as worlds 2 and 3 remain invariant. Worlds 2 and 3 will themselves change, more or less in relation to the changes that have taken place in World 1. This means that the architecture of society, for example, and the moral values recognized as such, will themselves be overturned. What we can expect, then, is

[9] Karl Popper, *Conjectures and refutations*, tr. fr., Payot, 1995.

not an aggregation of partial changes, but a global change which, in order to be understood, requires a shift to a different level of reality from that of the partial changes to which a type 1 change corresponds.

To illustrate what such a transformation might entail, let's take the example of the fall of the Western Roman Empire. The Roman Empire corresponded to a certain world order, a certain *Weltanschauung*, which is largely incomprehensible to us today. When Alaric seized Rome in 410, the Roman senator of the time saw a world collapsing, "the" all-encompassing catastrophe that seemed unavoidable at the time, even though he didn't really believe in it. And this same senator, trapped in this world of his, is incapable of imagining what might follow. The world that follows will obey principles other than those he takes for granted, while at the same time adopting and reorganizing certain elements (the Christian bishop taking the place of the imperial prefect, for example, and the pope that of the emperor himself). So, we shouldn't ask the Roman senator what the next world will be like, because it's beyond his comprehension, at a different level of reality from that at which he stands as an observer of events he can see, but whose meaning escapes him.

There are a number of observations to be made here, which we will develop further below:

- the world after takes on elements of the world before, but which now take their place in a different *Weltanschauung,*
- the transformation in question is manifested in Popper's three worlds,
- the transition from one to the other can be analyzed as a bifurcation occurring at a breaking point reached by an imbalanced system that can no longer maintain its homeostasis (Prigogine),
- this imbalance is the result of an accumulation of risks exceeding what the system is capable of bearing,
- the bifurcation itself can be either abrupt (the sack of Rome) or extended in time (the decline of the Empire), or both (the sack of Rome being a culmination of the slow decline of the Empire),
- the bifurcation leads to a rigorously unpredictable "new world", usually beyond a period of chaos, with the past order giving way to a new one.

One final point: not only is what the "next world" will be rigorously unpredictable, apart from certain details that will be examined a little further on, but the timing and circumstances of the bifurcation, or transformation, are equally unpredictable. Everyone sees a storm approaching, looks to the sky with anguish or hope, but no one can say exactly when it will break out, or even if it will break out. The storm comes from the depths of the distant forest, unknown to us, and it is only after it has passed that "the secret of the dawn" (Heidegger) is revealed.

5. How Best to Deal with the Unexpected

The future, then, is a "veiled reality" (d'Espagnat). To imagine it, we need to escape the mode of understanding inherent in the world we live in today. This mode of understanding, as it animates everyday action, is based on principles that seem so self-evident that we lose sight of the fact that they are located and dated, the fruit of a historical evolution punctuated by epistemological ruptures, and destined to change again, more or less profoundly. Let's take a few of these principles as examples.

Linear time prevails over circular time; it corresponds to the arrow of progress (and not to progressive decay, as some other traditions admit); progress itself tends to be identified with technological progress, which takes precedence over other dimensions such as art or spirituality; but technological progress itself is linked to the pursuit of material prosperity, which thus constitutes the goal to justify the pursuit of economic growth and imposing itself as the priority standard for public action.

But this is a *Weltanschauung that is* necessarily contingent and open to debate. Other civilizations have based their values on presuppositions other than those briefly listed above. There is therefore no reason to suppose that this is an invariant of humanity. Circumstances can lead to their modification, and a sudden rupture can lead to their rejection and the adoption of an entirely different value system, responding to problems that were ignored or could not be solved in the conditions prior to the rupture. This "secret of the dawn", however, does not preclude reflection on what the future might hold. The future is obscure, but its anticipation does not exclude the designation of what it cannot be. By analogy with theological thinking, this approach can be described as "apophatic". We cannot say what the future will be, but we can say what it cannot be.

What, then, is the major obstacle facing our civilization as it struggles to find the means to overcome it within the framework of its own *ethos*? The obstacle seems clear: it's the limits imposed by the planet on human *hubris.* There's no need to repeat everything that's been said today about the deadly effects of human industry on our terrestrial environment. The "environmental crisis" is a direct consequence of our way of life and the principles on which it is based. Within the limits imposed by these principles, there is everywhere talk of "sustainable development", "green growth", "ecological transition" and "renewable energies". The trouble is that these are rather short-sighted ideas, and that such an approach leads nowhere - and we won't attempt to explain why here, as this is already well documented in a vast body of literature. It's a dead end, based on a denial of a risk that is too great to assume, whether by public authorities, business leaders or, ultimately, by each and every one of us.

What is certain, then, is that humanity's future cannot be conceived as an extension, albeit modified at the margins, of its current path, within the limits of its current *Weltanschauung.* It will necessarily be about something else, but to

the exclusion of what has brought us to the current breaking point, which can only lead to a transformation of the system as a whole. This means that the words "growth", "development", "prosperity", "progress" or "technology" will no longer have the meaning and value they have today. Many debates risk becoming irrelevant. Many certainties, and therefore assertions, risk appearing as nonsense or absurdities. Scientific knowledge (in the sense of "scientism") risks being devalued in relation to other fields of knowledge that are currently marginalized - all of which leaves room for words, subjects of attention and the search for forms of action that we cannot imagine today. Here, perhaps, we can quote the great Shi'ite thinker Ja'far al Sâdiq when he evokes "a secret within a secret, the secret of something that remains veiled, a secret that only another secret can teach; it is a secret about a secret that is veiled by a secret."[10].

Today's risk, whether for company leaders, public services or individual members of society, is not limited to partial, limited risks that could be conceived in an unchanged space. It's the system that disappears as a system organized in a certain way, to make way either for a chaotic situation, or for another system, itself organized in a different way. But this change in no way excludes the reuse, by this other system, of certain parts of the system that is now ours. After all, the columns of Syracuse's temple, in Sicilia, were abundantly reused by the cathedral that has now taken their place. And so, it is with many elements of the Roman Empire. Prefects have given way to bishops, and the philosophical constructs of antiquity have been re-employed in Christian thought as it has become established. In other words, the future doesn't start from nothing. It starts from what we are today, but what we can no longer be, because we come up against insoluble contradictions in the *ethos that* drives us.

This transition from antiquity to the "Christian era" was not without violence. The transition from one system to another (bifurcation, type 2 change or transformation, as the case may be) involves a moment of chaos, when supporters of the old and those of the new confront each other. When misunderstanding sets in, violence is a major risk. This violence is all the more threatening when the confrontation concerns fundamental, mutually exclusive principles of which the players are often unaware. It's a question of one worldview (based on continuity with the past) confronting another worldview, based on the rejection of that past and the affirmation of axioms hitherto relegated to the periphery of "politically correct" discourse and beliefs. It's only with time that the old can find its place in the new, once the new has become established as the dominant reality.

And so, the question arises as to how to overcome the major risk posed by this transformation, for which we need to prepare, without knowing when, how or in what direction it will manifest itself. Here, we propose a few avenues that undoubtedly need to be explored in greater depth:

- firstly, we must avoid becoming locked into what seems to be "self-

[10] Cité par Henry Corbin, *Histoire de la philosophie islamique*, Gallimard, col. Folio Essais, 2020.

evident"; nothing is self-evident in a changing world, and we must therefore make a clear distinction between the ethical convictions that constitute a person in his or her own right, and the beliefs that nourish these convictions, which do not belong to the person himself or herself but to the social and civilizational context that conditions his or her thinking.

- this means distancing ourselves from the "obvious" and opening up to otherness, to what is new and strange, far from the "self-evident". And, therefore, it requires us to prepare ourselves for what is utterly unthinkable within the framework of our inherited worldview, which seems to impose itself on us as a definitive reality beyond which there would be nothing but nonsense.

- added to this is the need not to give in to the emotion necessarily aroused by the collapse of what seemed "self-evident". In other words, it's a question of accepting that we must give up the "village saying" and take the risk of delving into the vast, thick forest of the unknown, in search of more relevant reference points for understanding what's going on than those that were valid in yesterday's world, as it's receding into the distance - whether we like it or not, and which are an impediment to thinking about reality as it is.

- but at the same time, we need to guard against false prophets, as they express themselves abundantly and confidently. This calls for a kind of information hygiene, similar to that used by intelligence services to evaluate information as false, plausible, probable or certain. Only a critical mind can keep us from getting caught up in what could be false leads. We need to train ourselves to interpret weak signals, where many people see only anecdotal events, in order to give them their full meaning beyond what we thought we already knew.

And so, it's a question of moving from a certain way of understanding reality to another way of conceiving it. This was the problem faced by quantum physicists when, a century ago, they had to admit that a thing could be one thing and another at the same time, depending on the instrumentation they used to apprehend it. To get out of the contradictions they were confronted with, they had to move on to another level of reality, one that better expressed the complexity of the reality they were confronted with, as it resisted them. It's this same reality that resists our inherited way of understanding it, and so the best way to deal with the risk it poses for us is to modify the level of reality at which we stand.

6. The Purpose of an International TD Chair

Readers who have had the patience to get to the end of this presentation are entitled to ask themselves what conclusions they should draw from it in practice: how can we anticipate risk through innovation? The answer must be based on the nature and scale of the risk in question:

If the aim is to find an innovation to deal with a risk linked to a type 1 change (Bateson), this may be limited to a technical improvement to the existing

system, aimed at providing a better service within a globally unchanged framework. This would involve replacing a mechanical coffee grinder with an electric one. The intention remains the same: to grind the beans with the least effort. All that's needed is to ensure that the necessary technologies are available and that the whole package can be offered at an acceptable price. The same applies to a reorganization aimed at improving overall performance.

The same cannot be said of type 2 change, which is bound to occur, although it is impossible to say when or under what circumstances. Innovations of interest in the foreseeable short term must therefore be considered in the light of type 2 change, which may occur unexpectedly. Let's take a very concrete example. The owner of a house refurbishes it, installing roller shutters and an electric gate. These are very welcome comfort features. But what happens in the event of a prolonged power cut? Can such an eventuality be absolutely ruled out? It's best to plan for an exit equipped with a mechanical lock and the ability to operate the gate manually.

In other words, when it comes to a technically possible innovation that seems desirable in the short term, it's important not to allow ourselves to be locked into a vision that excludes a type 2 change, i.e. a global modification of our horizon. This means anticipating the unforeseeable: "what if...?", with this unforeseeable change affecting both technical possibilities and the foundations of human values? Assuming the collapse of techno-industrial civilization, a young person from an African village, whose way of life has hardly changed in 20,000 years, and who knows how to produce his own food and clothes and build his own house, would be infinitely better prepared to survive than a young person from a Parisian suburb, who knows how to do nothing but a well-defined task in the world he lives in today.

Limiting our perspective to an essentially unchanged time horizon is a potentially mortifying form of confinement. We need to prepare ourselves for the unforeseeable. It would be the purpose of an international TR chair.

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