

Hypothesis

Active and Passive Sustainability: Measuring the Anti-Fragility of Territories

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Abstract: Sustainability is a paradigm of generative action if combined with the principle of anti-fragility. This contribution, adhering to a transdisciplinary approach, proposes a reinterpretation of the principles of the 2030 Agenda, orienting them towards a community-building model. Sustainability can be seen as passive (care) and active (custody), determining paths to be activated at the territorial level. Sustainability is a communitarian learning path measured by one's anti-fragility capacity. The effectiveness of the Agenda is linked to the dissemination and accountability of the challenges contained in the 17 objectives. The local scale is perhaps the most suitable for activating this process. However, this requires a strengthening of the anti-fragility of communities and organizations, which must be more capable of recognizing and reducing vulnerabilities and weaknesses. A promising field of application is that of impact assessment, to be reworked in the light of the anti-fragility approach.

Keywords: sustainability; anti-fragility; community; Sustainable Development Goals (SDGs); social impact indicators; local empowerment; local governance



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1. Introduction

The crisis caused by the COVID-19 Pandemic requires a joint effort to re-elaborate paradigms, models, and operational schemes in many theoretical and practical contexts. There are probably two concepts that have forcefully entered the public debate: the first is shock and the second, but not the least, is impact. An increasingly unpredictable chain of violent and catastrophic events awaits the planet's future and human civilization.

These events have an environmental morphology, particularly climatic, but also an anthropological root. The globalization driven by speculative finance, which emerged from the 90s of the last century thanks to the Washington Consensus, has strongly influenced the spread of a competitive and profit-oriented model [1]. Despite growing scientific evidence on environmental change and ecological awareness, policy responses have been weak and sometimes ineffective. It is inequalities that highlight the inability of this model to improve well-being levels in many countries, even in those strongly advocating this economic vision. The growth of inequalities, both internal and external to countries, characterized the world situation that went through the financial crisis of 2008 and 2010 [2]. The geopolitical transformations that resulted from it led to a general weakening of democratic institutions.

The thesis on which we base this work is the following: the determinants of this increase in inequalities are the same that have produced climate change. These reasons are explained by a system of mechanisms and rules (institutions) that artificially accelerated the human economy to the detriment of the economy of nature. A divergence of not insignificant importance! The life of people (the sphere of Bios) is strongly conditioned on access to the resources produced by the economy (GDP) but cannot ignore the availability of goods generated by the economy of nature. The first initiates the dynamics of the economic cycle, and the perimeter has been progressively expanded by globalization: this process has required standardization and uniformization of mechanisms and procedures.

Thus, information and communication technologies have made this possible, reducing the role of space. While having its cycle, the economy of nature instead proceeds with spatially differentiated dynamics. Not only. Caring for local specificity (Biodiversity) also requires local regulations and institutions. By allying with digital technology, the globalized economy aims to reduce differences and distances but increases inequalities. The resulting propensity for overproduction, on the other hand, increases the pressures on the ecosystem, irreversibly compromising its ability to self-regenerate.

The climate crisis is combined with the socio-economic and institutional crisis, aggravating the fragilities and vulnerabilities in large world areas, particularly in the southern hemisphere. A dramatic consequence is growth in migratory flows, affecting many people who often leave their own countries for climatic or economic reasons. The worldwide health crisis due to the spread of COVID-19 has forced everyone to see all this better. In this sense, it is an *apocalyptic* or revelatory event. It has accelerated many processes that have been underway for a long time. Perhaps he has also started others.

This contribution focuses on discussing the impact of the crisis in search of a new conceptual paradigm based on Integral Ecology. It proposes an enriched vision of sustainability that brings together the environmental, socio-economic, and institutional dimensions. Therefore, the work is structured as follows. Section 2 presents the paradigm of integral ecology and its possible practical applications, while Section 3 introduces the concept of antifragility by discussing its connection with the integral ecological model. Section 4 presents a conceptual framework for measurement and, finally, Section 5 offers some conclusive and open considerations.

2. Complexity and Connection: An Integral View “Beyond” Development

The economic model runs the risk of neutralizing the value of relationships, scarifying them, and reducing them to an exchange ordered by utility and convenience. In addition, the economic sciences are conditioned by anthropological reductionism, mainly losing sight of the systemic and complex vision. The recovery of complexity in Economics, its *rediscovery* as a social science depends precisely on a greater connection between theory and economic practice [1,3]. The paradigm of Integral Ecology corresponds to this need, attempting to reconnect the socio-economic system and the ecosystem. It is a “comprehensive framework for characterizing ecological dynamics and resolving environmental problems” [4]. At the root of the ecological issue, there is a major question of justice regarding the distribution of resources within and between generations [5]. The degradation of natural and climatic resources, seen as *common goods*, requires a different use and management of the goods themselves.

Complex cognitive models and interconnectedness on the action level are two sides of the same coin. Therefore, an integral approach is not attributable to the multidimensionality in the definition of variables but is characterized by its feature of community practice. For example, Daly and Cobb suggested the rethinking of development in the direction of the Common Good [6]. Although this category has a moral root, it is strongly linked to the practical action of a real community of people; a structure of relationships, interactions, connections, cooperation, competitions.

It is a social mix with infinite combinations. All this could be declassified according to the theory of social capital [7] was it not because it still appears strongly conditioned by utilitarianism, making relations an argument of the production function. There is the *person-in-community*: because of this, development results from a complex action by the whole community, which overcomes the bonds of clan and coalition. The community is open, plural, and inclusive, characterized by bonds of collaboration and cooperation. Development can no longer be an indefinite expansion, a pure growth of something. It is a *fulfillment*, a flowering result of a combination of positive relationships. It is a concept such as qualitative growth, which combines the economic and financial dimension with the social and environmental one [8]. Growth, understood only in a quantitative sense, is the cause of an extractive and myopic use of natural resources; therefore, it is also the

leading cause of the conflict between the economic and ecological systems. The increase in human activities causes increased pressures on the biosphere; a similar awareness has led many researchers from different disciplines to recognize that this marks the entrance into a new era.

It is, from time to time, defined by emphasizing the role of human activity (as in the formulation of the concept of Anthropocene proposed by Paul Crutzen) or on the power of technology [9] and of the capitalist organization model [10]. In any case, these are visions that require a leap forward from the point of view of the assessment and measurement of impacts. The provocation to think in a more dilated way about qualities rather than quantities implies an effort to find paths through which complexity is crossed, a crucial junction for a fruitful exchange between social sciences and ecology. Rethinking the setting and the framework of social action according to an integral ecology is first to take note of the intertwining between the biosphere and social systems. Integrate the economy into the latter, containing and constraining its potential for disruption. The first aspect is more properly ontological and linked to the theme of representation and the identification of models capable of reducing complexity without mystifying it. The second aspect concerns the issue of governance and the need to recognize, at every level of social life, the issue of the impact of actions, whether it is individual programs or public policies. It undoubtedly has to do with measurement schemes, especially with official statistics. The United Nations 2030 Agenda [11] represents a positive example: a soft law system that adds multilevel governance that activates a plurality of subjects in the various member countries. The fundamental principle of *Leave No One Behind* is the foundation of this collaboration, a commitment made by all the countries adhering to Agenda 2030 that focuses on the issue of reducing discrimination and inequalities that undermine the rights of everyone. Although some contest the non-universality of this document [12], it is proposed as a tool for a real and concrete process of democratization of local institutions.

Moallemi et al. [13], based on an extensive bibliographic review conducted with innovative experimental procedures, suggest a local agenda translation. The perspective adopted is a transformative change that attempts to go beyond the risk of what they define as the tendency for incrementalism that perpetuates the status quo. According to the authors [13], there are three pillars of this process of local appropriation of the sustainability principles of the 2030 Agenda and concern the local reinterpretation of the framework, the assessment of risks and the identification of participation paths. Sustainability thus appears as a process that involves everyone by commensurate responsibilities (political and technological skills) with material and immaterial endowments (including information). Accurate data and timely information is a latent goal of this localization process, according to the wisdom hierarchy referred to by Rowley [14]. As is known, it is provided with a large dashboard of statistical indicators that allow the progress of the 169 targets relating to the 17 Objectives of Sustainable Development (SDGs), combined with them a considerable amount of quantitative data and those derived from statistical analysis, offered by official statistical systems, also with a significant territorial domain. Having data with a very refined spatial scale and high-frequency measurements is a challenge that cannot be faced without bottom-up involvement and platform sharing [15]. Therefore, the local scale is the most suitable access route for managing complexity, understood as multidimensionality and concrete interconnection between systems. Paradoxically, it favours not so much reductionism as concreteness, that is, the distribution and sharing of actions and interventions. Such awareness is linked to the provision of information and its action-oriented fruition, a practical knowledge embedded in the interconnections and interrelationships of those involved.

The attitude to collaborate and cooperate releases energy for a different type of development, thanks to the multiplicative effects that derive from the intertwining, or rather, from the actual exchange of relational goods. Objective 17 intends precisely to recognize the value of these assets as a necessary condition for the advancement and implementation of

the Agenda. Recognizing Objective 17 as a *methodological centre of gravity* leads to rethinking the strategic value of localization for the very effectiveness of the Agenda.

This centrality is expressed in a progressively increasing measure to the ability of the communities to select and process relevant information, a sort of information paradigm of the collective intelligence of local communities that favours sharing alertness that facilitate the deliberative process. It is a question of radically rethinking decision-making processes, focusing on participatory schemes and more direct data and information capture. It is more direct as it is close to the phenomena of interest and, therefore, more concrete and practical for deliberation.

New trade-offs emerge, also fuelled by the paradox that the enormous amount of information (big data) and the new empiricism they induce does not favour a global (i.e., complex and connected) knowledge of sustainability. One could problematically ask whether greater complexity does not require a sacrifice of the totality of vision, or perhaps as in a fractal scheme, complexity is not represented in a more obvious way in the local dimension.

3. Sustainability and Antifragility: What Link?

The interconnection between the different statistical systems is undoubtedly one of the most evident types of evidence of universalization. An indication of complexity is often not fully assumed by scientific and regulatory approaches strongly tending towards specialization. Among the many perspectives, evaluation and measurement play an important role: complexity in this area means combining quality and quantity, subjective evaluations and objective measures in an innovative way. Not only.

Local and global scales will also have to be integrated to harmonize the top down logic of official statistical production and the bottom up logic of the new big data.

Sustainability, more than other complex visions, requires support from below, it requires thinking embedded in local relationships and networks: a cognitive and widespread sustainability is needed. While remaining a polysemic word, at the root of sustainability is the idea of supporting [16], which suggests someone's action and commitment to do something. Even if one wants to think about sustainability with maintaining a state [17], the idea of action is proposed again, although aimed at achieving an equilibrium or stationarity. In this sense, the definitions of sustainability proposed by some official documents and institutions assume this ethical polarity and decline it as intergenerational justice in the present and the future [18].

However, it is necessary to specify better what is meant here by the ethical allocation tension: we want to refer to the spectrum of action possibilities to improve vital conditions in a generalized, widespread and harmonious way. It identifies a frontier of possible trade-offs that leads to rethinking the relationship between man and the environment, technology and innovation, production and stewardship.

In some respects, we find this boundary in the distinction that has emerged in the most recent literature between weak and strong sustainability. It is based on the different vision of complementarity between human (or artificial) capital and natural capital: in the case of weak sustainability, they are assumed to be replaceable, differently in the case of strong sustainability. In any case, a difference still has an economic matrix that places the accent precisely on the category of capital accumulation; for this very reason, it has been harshly criticized [19] by proposing to overcome it [20].

It is necessary to overcome this paradigm, which is affected by utilitarian reductivism, to arrive at a new vision that does not limit itself to considering goods and values, interpreting them as resources and endowments. In this sense, it will be helpful to explore new, more collaborative and cooperative paradigms of action, inspired by a we-rationality capable of incorporating everyday purposes in the transformation processes (technological and organizational) and in the recognition phase elements that form the biosphere. It suggests a community and local approach to sustainability, focused on the generation of "antifragile" structures [21].

Antifragility is, according to Taleb, an attribute that improves the self-organizing capabilities of a system concerning the increase in external perturbations. Whether, therefore, the frontier of trade-offs shows more and more through the form of crises, producing increasingly complex problems (increase in external variability), the best scale to face them appears to be the local one through community-based approaches. It allows living systems to react to external shocks through random mutations followed by selection and supports change as a possibility of further life, therefore in the future [22,23]. An antifragile strategy is, therefore, one that focuses efforts on reducing internal vulnerabilities (weaknesses) rather than on the search for optimal or excellent solutions, according to the bi-modal or “balance” approach. The mapping of risks and their progressive monitoring (where possible also of reduction) therefore becomes a constitutive element of any method that aspires to be antifragile.

Overcoming the GDP-driven productivist logic requires an anti-fragile activation of resources, particularly environmental ones: sustainability is equivalent to a more sober and less extractive transformative (technological) model. An important attribute of antifragility is frugality [24]. It will be the most frugal organizations and communities that will be able to manage the challenge of sustainability: because they will have a greater capacity to adapt in disturbed environments, simultaneously strengthening their internal resistances or their ability to monitor and reduce vulnerabilities.

The community approach is the decisive link just as the bottom-up approach and the relational approach are fundamental. An antifragile reinterpretation of the principles of the 2030 Agenda will therefore be necessary, handling it as a tool of community building for the empowerment of local communities [25]. Finally, we can affirm that sustainability is a learning path, specifically local (it would be better to say communitarian) measured by the strength (or capacity) of one’s antifragility.

4. A conceptual Framework for Measurement

The 17 objectives of the 2030 Agenda establish an action plan aimed at a plurality of recipients, suggesting a method of collaboration and cooperation (Target 17: Partnerships for the Goals) whose effectiveness must necessarily be profiled at a concrete and local level. The 2030 Agenda and its 17 SDGs provide an analytical framework that inspires a transformation process that restores space to society, the environment and politics in a logic of interconnection and independence on the one hand (the transformation of vision) and the assumption of personal and community responsibility (the transformation of action) on the other. The statistical monitoring of the targets is fundamental as already mentioned in par. 2, this task of systematic data collection is assumed as a fundamental objective for the statistical functions at the central level and to provide more precise and specific information at the local level.

The vision of the Common Good presupposes not so much the idea but the very existence of a community, or instead of communities. The orientation and self-organizational effort are necessary for the global realization of the Agenda.

Necessary but not sufficient!

It is good to underline it for not losing responsibility for the quota-part of the possibility that derives from national communities, that is, from governments. The keystone is the change of territorial systems; if they want to become genuinely anti-fragile, they will have to rebuild their internal governance by modulating and programming through the SDGs. In this perspective, sustainability can take on two not complementary but integrated profiles: *care* (passive sustainability) and *custody* (active sustainability). Care identifies the objectives of protection and safeguarding of the socio-economic and environmental systems: (1) No Poverty; (2) Zero Hunger; (3) Good Health and Well-being; (4) Quality Education; (5) Gender Equality; (6) Clean Water and Sanitation; (14) Life Below Water; (15) Life On Land; custody concerns the objectives that promote qualitative growth: (7) Affordable and Clean Energy; (8) Decent Work and Economic Growth; (9) Industry, Innovation and Infrastructure; (10) Reducing Inequality; (11) Sustainable Cities and Communities;

(12) Responsible Consumption and Production; (13) Climate Action; (16) Peace, Justice and Strong Institutions. Objective (17) Partnerships for the Goals constitutes a sort of fulcrum that holds all the targets together, regulating the flows and synergies between them (Figure 1).

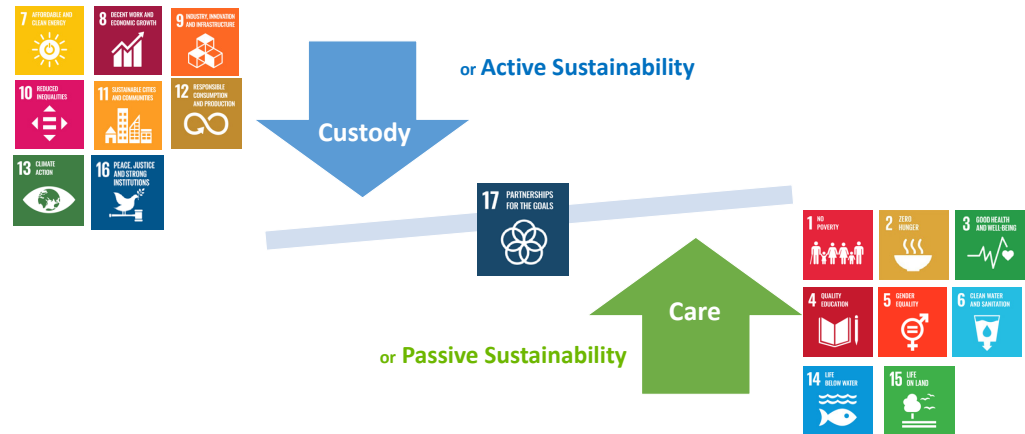


Figure 1. Active and Passive Sustainability.

Care dynamics tend to be diffusive, symmetrical, and predominantly cooperative; those of custody are concentrated, asymmetrical, and tendentially competitive. The governance of these processes must necessarily be participatory and local: the community is the territorial scale capable of managing information flows and activating organizational forms to reduce entropy and waste. A further step will be to test a model that offers an evaluation tool for analyzing territorial systems both by using the new metrics offered by the SDGs and by drawing on qualitative tools offered by the Big Data currently available. The application field of social measurement and impact assessment become particularly significant to meet this challenge according to a truly antifragile approach. If on the one hand the Agenda is configured as a formidable attractor of the “sustainable conversion” of public policies and organizational strategies at every level, on the other hand it is precisely the latent vision of the Agenda that recognizes the centrality of participatory work and negotiation that can best be expressed on the local scale. In this sense, the evaluation tools become formidable self-diagnosis schemes and strategic orientation of communities and organizations. In particular, the knowledge and information capture phase becomes central for the activation of participatory processes, but also for the definition of evaluation parameters and indicators.

It is therefore necessary to strengthen this passage as a crucial element of antifragility, that is, awareness of the strengths and weaknesses, of the endowments and resources, of the needs and expectations of the members of the community or of the organization. The targets of the Agenda must be assumed and internalized locally: they cannot be seen as objectives in their singularity and specificity. Rather, local communities and organizations need to be able to identify trade-offs and overlaps in order to reduce the risks of neutralizing the overall effectiveness of the Agenda.

The horizon is therefore the change of development models and styles towards sustainability, the perspective is cultural and social, the methodology is anti-fragility, the focus is on relationships, in particular those rooted within a territory.

In our opinion, a very promising field of application is that of social impact assessment. It becomes a tool for organizations and communities to be in tune with the Agenda targets, which however passes from a learning capacity focused on local challenges and on the production of bottom-up knowledge and documentation. A spillover of this process is the enrichment and expansion of the cognitive patrimony (knowledge capital) provided by official statistics. A methodological proposal is placed in this direction, specifically conceived in the context of social policies, which aims to strengthen both the effort of local

assumption of Agenda priorities and the skills of self-diagnosis and reading of needs and contexts by local communities [26].

The ecological transformation that the Agenda guides “from above” its objectives requires a considerable effort of change from many organizations and communities that often operate in increasingly disturbed contexts and in contexts not always aligned with these priorities. Tools are needed to implement antifragility at an organizational level, that is the ability from below to recognize and manage one’s own vulnerabilities.

The proposed methodology is divided into three steps: Orienteering; Mapping; Sailing. Orienteering is a phase in which to build the information support necessary for the next phase in a dialogic and participatory way. In Mapping, the link between local and global is built, leading to the decision phase (Sailing).

5. Conclusions

The present contribution aims to examine a theoretical framework to build a new approach to evaluating territorial systems. However, complexity appears to be a transdisciplinary challenge to face a more concrete discussion of the theme of the crises that will increasingly characterize future scenarios. These crises seem to be closely linked to the tensions generated by the tendency of the different systems to find internal solutions. The acceleration induced by the prevalence of technological and organizational apparatuses risks suggests abstracted and ineffective solutions. The technology, or rather the reticular interconnection between the data managed by the devices, is aimed at the efficiency and standardization of the procedures and rules of conduct. Such rigidity leaves no room for managing the unexpected and the crisis. Greater local curvature of this digital-assisted process is needed to favor a necessary strengthening of local community structures. Sustainability, embodied in the vision of integral ecology, has its fulcrum in a new relational paradigm. Concreteness and effectiveness will come from the ability to generate concrete and local solutions; the thesis we have presented concerns the need to combine the challenge of sustainability with the principle of antifragility.

The first is embodied in the 2030 Agenda action plan, which outlines guidelines for regenerating governance processes and tools towards change despite some limitations critically discussed in the paper. Moreover, this enhancement of participatory processes originates from the Aarhus Convention, which entered into force in 2001.

In the spirit of the Rio Declaration of 1992, this convention paved the way for a real environmental democracy. Access to adequate information and awareness in the use of data are two essential coordinates for an effective community approach. The outcome is anything but a foregone conclusion. In light of what we have argued, its feasibility will depend on the awareness that such changes need to be rethought as an antifragile response that must appear locally. The scale of the transition (not only ecological) will either be communitarian or not. From the various studies reviewed, coming from different disciplines, they converge in indicating in the self-organizational strength of local communities the distinction between a sustainable future or not.

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