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Resistance to -systemic sustainable- change in decision makers of cities and industries

Causes and possible ways to overcome it, in a Latin-American developing environment

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Title

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Degree: Master in Urban Climate & Sustainability

Abstract:

This is a qualitative study that aims to expose and explain the relationship between Sustainable Management and Resistance to change, providing useful information, tools and skills to identify, understand, and manage this resistance in the decision making system, appreciating its relevance in the structural inaction in the face of the climatic and ecological crisis, specially in the national context of Colombia.

The conceptual proposal is based on Harich's statement (2010) about the fact that the resistance to change of the system itself is the root of the great global environmental challenges. A Literature Review was carried out to learn about the background and relationships between the concepts of Sustainability Management, Change Agency, and Resistance to Change, as well as the sometimes less obvious Barriers to sustainability and the low-carbon transition, such as private interests. Through the interview and survey methods, experts, decision makers, consultants and others who work influencing the implementation of sustainability high impact solutions and policies, participated in order to confirm and complement the findings of the literature from the professional practice. The most important barriers to making sustainable decisions can be framed in fear, hidden or secondary interests based on the preponderance of the economic aspect, and established thought models and paradigms, especially the inflexible legal frameworks that perpetuate status quo and hinder innovation.

The conclusions advise how the main tools: knowledge and strategy, pedagogy and communication, participation and transparency, can contribute to transforming the institutional and legal framework, and therefore, the market and the economic model.

Finally, the recommendations mention the issues related to this study, but not addressed in it, and that may be key to developing the theoretical framework such as the types of sustainable leaderships or management, which sector is most resistant to change, and which strategies are being used with greater and lesser success to manage systemic and sustainable change.

Keywords Sustainability Management, Resistance to Change, Decision Making, Systemic Sustainable Change, Low Carbon transition, Vested interests, Change Management.

Originality statement. I hereby declare that this Master's dissertation is my own original work, does not contain other people's work without this being stated, cited and referenced, has not been submitted elsewhere in fulfilment of the requirements of this or any other award.	Signature

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My deepest gratitude to Mat.
simply the representation of
unconditionality and support.

Merci, toujours.

For Elena, because on July 28,
the day after her first birthday
was the earth overshooting day.

I really hope we change, and
you can see a regenerated planet.

For those who do not believe or join
the change, so that they understand that
we can be better and make it right.

And for all the "Sustainers"
and ChangeMakers
that give it all everyday
for life, and common good.
Thanks always to them

LIST OF FIGURES

ACRONYMS

RtC: Resistance to Change

SDM: Sustainable decision making / Sustainability decision maker

SM: Sustainability Management / Sustainability Manager

SMs: Sustainability Managers

SSC: Systemic Sustainable Change

CA: Change Agent

Influencer of SDM : Influencer of Sustainable Decision Making. Person that works inciding in the implementation of high impact sustainable solutions or sustainability-related public policy.

1. INTRODUCTION

1.1. Rationale

Sustainable Management is not and has not been the dominant management model. The **unsustainability** of cities[1] and industries, the food model, the production of most goods, the transport and energy model, is the main cause of the climate crisis and an evident and overwhelming reality, about which science began to warn at least six decades ago.

The Stockholm Conference (1972) and the later resulting Brundtland Report (1987), agreements such as Kyoto (1997) and Paris (2015), and a number of summits all years about Urban Sustainability and related topics have seemed to be the stage for governments or decision makers of the world, politically and industrially speaking, to react and act in regards of sustainability as an inherent characteristic of development; after all, the survival and quality of life of the human (and the other) species depend on it. But the reality is that, amid events on a larger and smaller scale where there are many declarations, there is no visible systemic or big scale action for change, or the paradigm shift towards regenerative development that is needed.

The concepts of sustainable and smart cities are still very incipient, more evidently in developing countries, where agendas do not advance, or do so at a surprisingly and deliberate slow pace, in which most high-impact solutions, developed and proposed by organizations, entrepreneurs, innovators, and scientists, are not being implemented or taken into account, despite their social, environmental and even economic viability and benefits. ¿Why is it so?

As Harich (2010) insinuates, efforts in solving the great global environmental challenges have been misplaced; the root of those challenges is not "the ways of living sustainably", but the *resistance to the change of the system itself*, and as such, it is the one we need to solve first. This is a statement of the greatest relevance, since it constitutes a whole change of perspective and paradigm for the management of sustainability in organizational, governmental, technical, and ethical terms.

Change, partially, is something that happens permanent and inevitably in many levels; is an organic consequence of time; but there is also Status Quo and as Bauer (1992) stated, there would be *certain* trajectories of change that are resisted.

In that sense, resistance to low carbon transition (Geels, 2014) or what could be called Sustainable Systemic Change, needs to be identified, unraveled and

[1] Χιτιεσ αχχουντ φορ οωερ 70% οφ γλοβαλ ΧΟ2 εμισσιονσ (Δασγυπτα, Λαλλ ανδ Ωηεελερ, 20 22. Ωορλδ Βανκ)

addressed, in order to lead the change that is needed and achieve a successful and sustainable management of cities and resources.

Who are the actors of this resistance, what are their drivers and how can those be managed, are some of the interests of this study, as well as showing the existing relationship between corruption -as a widely studied barrier to sustainable development, especially in developing countries (WEF, Ganda, UN, Imasiku) - and this resistance to change, where power relations and the interests of the actors involved define whether or not there is a more or less sustainable and efficient model at the urban and industrial level beyond the technological availability and technical development reached.

Although it may be difficult, due to the very social nature of resistance to change, discussing these issues and barriers -in an academic context-, is a challenge that must be urgently assumed in order to be able to talk about the possibility of an energy transition, low carbon economies, mitigation and adaptation to climate change, among others, in short, Sustainable Urban Management. That is why this study aims to identify and address resistance to sustainable change as a real challenge, and to propose tools or skills to overcome it.

1.2. Aim

To expose and explain the relationship between Sustainable Management and Resistance to change in decision makers and its importance, providing useful information for understanding and managing it, contributing to a Top-down systemic sustainable change, especially in the context of decision making in Colombia.

1.3. Objectives

- Expose the relationship between Sustainability Management and Resistance to change and its importance.
- Identify the barriers and causes that prevent decision makers in Colombia from implementing high-impact -proven and viable- solutions towards a *systemic sustainable change*
- Visibilize vested interests as a main component of Resistance to Sustainable Change, and emphasise their impact in the sustainable decision making and management in Colombia.
- Provide useful and conclusive information and tools to understand and manage resistance to change in decision makers from Sustainability Management and incidence.

1.4. Outlines

1.4.1. Methodological outline

This is a qualitative study, with a mixed strategy. First, the strategy of Literature review with two objectives:

- To provide support to the hypothesis and a context for either interacting with the participants, and for assessing the data resulting from these interactions (surveys, interviews).

- To provide the tools and knowledge for the synthesized outcome of the study, an instrument to understand and manage the relationship of sustainability management with change agency and resistance to change.

The second strategy was surveys and interviews, which results were analysed taking elements of the axial coding in Quirkos software.

The respondents were professionals who work directly with advocacy on sustainable public policy or close to a decision-making position for the implementation of sustainable solutions in the private, public or third sector.

The interviewees were municipal and regional decision makers and a world-renowned expert.

1.4.2. General outline

In the background, the concept of resistance to change is exposed, and the references in the literature to its relationship with sustainability, as well as the way in which private interests have played a role in managing sustainability, especially in developing countries.

In the results, the objectives are presented one by one with the answers and information related to them respectively from all the sources of information (participants) of the study. The most important barriers to making sustainable decisions can be framed in fear, hidden or secondary interests based on the preponderance of the economic aspect, and established thought models and paradigms. The discussion takes place mainly around all the information provided on these non-obvious barriers to sustainability, which are therefore not addressed in common mechanisms and spaces to promote sustainable practices such as events and professional networks.

The conclusions summarize the most relevant findings for the practitioner of sustainable management, and how the main tools: knowledge and strategy, pedagogy and communication, participation

and transparency, can contribute to transforming the institutional and legal framework, and therefore, the market and the economic model.

Finally, the recommendations mention the issues related to this study but not addressed in it and that may be key to developing the theoretical framework such as the types of sustainable leaderships or management, which sector is most resistant, and which strategies are being used with greater and lesser success to manage systemic and sustainable change.

2. LITERATURE REVIEW

2.1. An unsustainable management paradigm

Talking about sustainable management is talking –in short- about the balance of natural resources in their relationship with human needs. The United Nations (in Starik and Kanashiro, 2013) stated that past and current human depletion and pollution activities have endangered nearly two thirds of the world's ecosystems. That tells well about the current managerial, economical (*oikos-nomos* from the management of the house) paradigm.

Scientists and scholars have warned decades ago, in many ways, about the unsustainability of the current linear and brown economic paradigm; a model of extraction, production, consumption, and disposal, based on fossil fuels. Agriculture has deeply affected biodiversity, and land use change is responsible for 17 percent of global GHG emissions (FAO, 2018), but even so, a third of the food produced in the world is wasted, not consumed, generating even more emissions. Like this one, various negative feedbacks can be found throughout the production chains. In short, resources are being managed in an inefficient way, to say the least, generating their depletion and making quality of life on the planet more difficult, for the human species, and for all the others, which are becoming extinct at the fastest rate since 65.5 million years ago due to human activities and poor resource management (WWF, 2022).

Regarding this vital issue, the discourse that has best mobilized people, governments, and companies is that of climate change; the information and figures from the IPCC (intergovernmental panel on climate change) on the effects of emissions from human activities on the global climate and temperature, and what the environmental, social, and economic consequences of this imbalance may be, have been the most evident and clear way to make a call to action and transformation of the current model and paradigm of production and consumption. 192 countries plus the EU, agreed to make great efforts to reduce their emissions by 2030 in the Paris agreement at the COP[2] 21 in 2015.

2,094 jurisdictions and local governments from all over the world declared the Climate and Ecological Emergency, and in January 2021, United Nations conducted the largest survey of public opinion on climate change, where the 64 per cent of people said that climate change was an emergency (climateemergencydeclaration.org, 2022). Nevertheless, citizen movements (such as the Climate reality Project, Fridays for Future, Extinction rebellion), experts and NGOs that denounce climate inaction, increase every day, pointing out that beyond the events and summits, in practice, the actions of the governments and companies are neither ambitious nor fast enough for the

[2] Χονφερενχε οφ τηε παρτιεσ οφ τηε ΥΝ

magnitude of the problem; in effect, the last report of the IPCC (2022) states that the harmful carbon emissions from 2010-1019 have never been higher in human history, and the earth overshooting day[3] is sooner every year, making clear the difference between the commitments and actions of governments and companies, or simply, the insufficient understanding of the need of a system *change*.

2.2. A change is needed

The exposed above suggests that changes to the economic system are required. The ECLAC[4] (2015) confirms that the processes required to limit the average temperature increase to no more than 2°C are not yet in place. To meet emission targets, immediate and significant changes need to be made in terms of existing development patterns, the energy mix, the infrastructure and different institutional regulations, economic incentives, instruments, and technologies, etc, going through structural changes (ECLAC, 2015). These changes would pass by eco-efficiency, but might be directed to regenerative development (Pedersen, 2019).

The people who work to make this change possible are Sustainability Managers. That is why the aim of this study is to clarify the relationship between sustainable management and the change agency of decision making, to highlight the most subtle challenges that exert the greatest resistance to this change, and how to identify and manage them.

2.3. Sustainable Management

There is little literature about Sustainable -or sustainability- Management, but it is defined as the application of sustainable practices in commerce, agriculture, environment, production, and other fields, by management in a manner that is beneficial to present and future generations (MDPI 2020), or like Steven Cohen (2011) would say, Sustainability management is simply the organizational practices that result in sustainable development which, since the Brundtland report (1987), has developed from a conceptual understanding, to prescriptive strategies that minimize environmental impact and maximize resource conservation, protection, and restauration. There is a growing momentum behind these practices, especially in well-managed corporations and sophisticated municipal governments (Law Explores, 2016).

[3] Εαρτη Οϖερσηοοτ Δαψ μαρκσ τηε δατε ωηεν ηυμανιτψэσ δεμανδ φορ εχολογιχαλ ρεσου ρχεσ ανδ σερϖιχεσ ιν α γιϖεν ψεαρ εξχεεδσ ωηατ Εαρτη χαν ρεγενερατε ιν τηατ ψεαρ.

[4] Εχονομιχ χομμισσιον φορ Λατιν Αμεριχα ανδ τηε Χαριββεαν, φρομ τηε Υνιτεδ Νατιονσ.

Starik and Kanashiro (2013) define sustainability [management] as harmonizing or integrating human and nonhuman phenomena, with the intent of increasing the long-term survivability and "thrive-ability" of both.

Barrow (2006) goes in the same line of the latter definitions, adding a key concept for this study; for him, environmental management (comparable with the sustainable management), when seriously undertaken, is a process of decision making about the allocation of natural and artificial resources that will make optimum use of the environment to satisfy at least basic human needs for an indefinite period of time and, where possible, to improve environmental quality. This perspective is totally insightful for understanding the nature of sustainable management as something inherent to decision making, and decision making as something inherent to SM.

Sustainable Management is recognized as a new field of study that is both a practical and long-term approach to organizational management combined with the field of environmental policy (Cohen, 2011; in Law Explores, 2016), in an effort to correct modern management, moving it away from the abstract world of financial manipulation and back to the concrete world of physical resources and constraints. The principles of sustainability management are built on an understanding of human dependence on nature, and a framework that demonstrates that continued economic prosperity is dependent on the health of the environment (Law Explores, 2016).

With a clear definition of sustainable management, what is more important is to recognize its relevance in the global and local scales, related to the ecological crisis the planet is facing, and to acknowledge the barriers this kind of management is facing itself, so it is possible to talk about sustainable development, overcoming the crisis, and foreseeing a livable future with access to resources for everyone.

2.4. Barriers to Sustainable Management

While the OECD (2015) remarks that lack of information remains a key obstacle to decision making, Tantram (2022) states that "when sustainability managers offer the key information or provide a solution, they are often hampered by resistance, apathy and misunderstanding; as sustainability is not owned by the organisations, and it needs authority to thrive in them".

These latter could be considered attitudinal barriers. Henriquez and Catarino categorized the barriers to energy efficiency in 2016, and Lood et al. applied them to SMEs in 2022. These categories apply in a parallel way to different sectors, institutions and organizations. They are: organizational, managerial and attitudinal; informational; governmental; financial; training and skills development; market and business context; and technological.

According to Barrow (2006), environmental management decision making must be conducted when there are often inadequate data, incomplete knowledge, funding and time constraints, and lobbying by special-interest groups, citizens and politicians. Besides, companies, politicians and publics seldom adopt a long-term view, loans have to be repaid fast, developers want rapid results, and ministers look only ahead to the next election.

The objective 2 will lead the study to confirm or complement this information and will show the connection between these categories and obstacles mentioned by the authors, and the data about the barriers contributed by the participants.

2.5. Sustainable Managers as agents of change

In order to make possible the shift of paradigm, from unsustainable, to regenerative and sustainable, change theories and strategies need to be applied and to have ambassadors.

According to the ACPA's[5] literature review, which describes the values of the change agent of the future; and Starik and Kanashiro (2013) who describe the values of the sustainability manager, this latter is an agent of change. Some common elements between both descriptions are resilience, ethics, capability of creating systems and relationships between actors, and both short and long term vision, altogether with optimism despite the fact of being also realistic and objective, cognizant of the context.

There are not only managers, but inventors or innovators, scientists, and entrepreneurs that could be called "Sustainers", who create and offer real and viable solutions to make regeneration and sustainable development real and accelerate the curve of the adoption of a new paradigm.

Sustainers are subject of different events, calls and contests as -still- isolated events; their solutions are not being applied at scale, and is that "elephant in the room" of the structural inaction, and absence of radical change (there are only incremental steps) the one that this review and research addresses, when asking real practitioners about their experiences and perspectives in this field, promoting and advising others and own viable solutions and practices.

2.6. The concept of Resistance to Change

Resistance to change is a notion credited to Kurt Lewin in 1940, focused on handling aspects of employee behaviour so that organizational change could work effectively. His original conceptualization has transformed; nowadays

[5] ΑΧΠΑ□σ Πρεσιδεντιαλ Τασκφορχε ον Συσταιναβιλιτψ. Χολλεγε Στυδεντσ Εδυχατορσ Ιν τερνατιοναλ. Νο δατε

psychology states that resistance or support to change are associated with values, habits, and mental models within the individual (Harich, 2010). Authors like Kotter (1995, in Harich, 2010), pointed that, even when that resistance could be sited within the individual, is "more likely to be elsewhere in the system".

Harich (2010) states that the root of all the great global environmental challenges, is the resistance to the change of the system itself, and as such, the problem we need to solve first. The study's aim is to continue with that line of research and the hypothesis is the same, as a product of the experience and observations of the author over several years, particularly the last 7 of professional exercise in the field.

The strongest nature of resistance to change is social (this study proposes that is socio-political). A study realized by Martin Bauer (1992) showed that the most frequent associations with Resistance to change were fear and anxiety. As it is for organizations is for societies, where change could be seen or promoted by the establishment as a source of instability. This perspective is similar to the one of Laurence, back in 1954, who said that "when resistance does appear, it should not be thought of as something to be overcome [but] of as a usual signal that something is going wrong".

This perspective leads to the following associations of the study of Bauer: bureaucracy, and conservatism; and is in these latter that certain actors of the system might be more identified with authors that define resistance as an "attribution from a position of power and agenda setting" (Guest, 1984; in Darmawan, 2020).

Karaxha (2019) points out that the factors of these different causes are categorized as individual and situational, and the resistance itself can be Technical, Political and Cultural. Even when political and cultural can be often very close, especially in "politicized" or traditionally politically divided societies (like that of Colombia), this study will approach mostly the political nature of resistance to change for being politics the setting of decision making and hence the one of greater relevance or closeness to the root problem mentioned in previous paragraphs.

Several authors (Smollan, 2011; Chung et al., 2012; Forsell and Åström, 2012; Pakdel, 2016; Thakur and Srivastava, 2018) have agreed on the three dimensions of RtC: cognitive, effective and behavioural, and Bouckenooghe, in 2010 pointed out it could be the combination between these and Intention (Uchenna et al. 2021). The effective is probably the one that the objectives of this study will approach the most, and the addition of the intention connects with the values and drivers both of the SM and the actors of resistance.

Some authors (Bargmann, 1984; Klein, 1984, Carlopio, 1988; in Bauer, 1992) identify the main agency of RtC in the middle strata of an organisation (supervisors and the lower and middle management). Others, on the contrary

think that change is resisted from both the lower position and the higher positions in the hierarchy, and pushed by middle management (Alter, 1985; Streicher, 1984; in Bauer, 1992). This perspective will not be deepened in the framework of the study, as it is directed at decision makers and Influencers of Sustainable Decision Making, and not to organizations, but it might help the reader to get familiar with RtC in the daily environments.

Harich (2010) defines resistance to change as "the tendency for a system to continue its current behaviour, despite the application of force to change that behaviour"; but we could also say that there are natural changes, that comes without application of any force, and like Ragsdell (2000) states, cannot be *resisted*, as "they happen all the time because of globalisation, economic crises, developments in information and communication technology, and demographic changes". Bauer (1992) put it in these words, "macro level stability masks micro level fluctuations, and micro stability disguises long term changes", and he adds: "If change is omnipresent, and stability a matter of perception, it is not change that is resisted, but certain trajectories of change. The crucial question arises: what kind of change is resisted?"

2.7. Resistance to change and sustainability

That brings us to Sustainability. Lozano and García (2020) pointed out that, despite the increase on organizational change management for sustainability during the last decade; incorporating, integrating, and institutionalizing sustainability in organizations is still under-researched; which constitutes one of the reasons why this study is important, which apply not incorporating it in the organizations but in the (economic, political) system.

Harich (2010) link the failure of human system to solve the problems of sustainability over the last two decades to the resistance to change.

In this regard, Geels (2015) points out how important it is to "seriously study "incumbent" regime dynamics, rather than focusing only on green niche-innovations" and to conceptualize the regime actors as actively resisting fundamental change, rather than seeing them as an inert or passive part. The four ways in which regime actors can mobilize power to resist fundamental system change are (instrumental, discursive, material and institutional).

Harich, in line with Geels, states that large corporations overwhelmingly influence even legislation on their own definition, not people; and denounces the 'false assumption' that change resistance occurs at the level of individuals and can thus be overcome by the inspiration, exhortation and bargaining. He points that the world's problem solvers appear to have fallen into one of the biggest traps: the "fundamental attribution error", a psychological concept about the strong tendency to blame the person rather than the system (Sterman, 2000. In Harich, 2010).

That is why, instead of showing how to solve a specific environmental problem, he advocates for finding a root problem that can solve with itself the largest number of problems possible, which is the spirit and motivation of the inclusion of this theory in this work.

In front of change, different people can react differently, and personal interests can prevent change either in companies or institutions. Here, *the **moral and ethical** dimension of work is prominent* (Karaxha, 2019). The WEF and UN point out that corruption endangers all the 17 Sustainable Development Goals and highlight the need to recognize the full complexity of it – its causes and effects – to fully address the underlying structures and dynamics.

2.8. Corruption and Resistance to Systemic Sustainable Change in Developing Countries.

The prevalence of clashes between long-term sustainable investment and immediate gains or profits with governments is a source of concern and worry. Public goods abuse by public officers or any act of bribery for personal gains, is corruption and one of the greatest barriers to sustainable development (Imasiku, 2020).

In Africa, the UNECA reports that corruption impedes economic growth, and Imasiku (2020) states It is evident that our current administration structures (…) by which choices are made, are deficient or have been mistranslated and therefore cannot drive the necessary changes, at the national or global level.

A study in the influence of corruption on environmental sustainability in the developing economies of southern Africa showed that when corruption affects the sectors (social, economic and political) of the country, environmental sustainability initiatives will be inadequate in improving the state of the natural environment (Ganda, 2020).

The OECD (1997) express that corruption has demonstrated high impacts in less industrialised countries. The World Bank states that the environmental costs of corruption are so hard to quantify primarily since corruption itself (owing to its characteristics and attributes) is often difficult to measure. Regrettably, for most growing economies that have large reserves of natural resources, corruption is widely known as the major cause of natural environmental destruction.

According to a study conducted between 2003–2016 in 61 countries by Akhbari and Nejati (2019, in Ganda, 2020), *in developing economies corruption increases emissions*, while in developed countries corruption no longer influences carbon emission levels (Ganda, 2020). The study used the variables: Carbon Emissions (CO2); Gross Domestic Product (GDP); Primary Energy Consumption (E); Trade (T); Corruption Index (CORI); Human Development Index (HDI) and Urban Population Growth (UPG). However, it is not within the scope of this study to

describe the direct, unique and quantitative relationship of corruption with the emissions themselves, but with the decision-making that can lead to the implementation of solutions, technologies and specific public policies (programs or projects) to reduce emissions and generate other socio-environmental benefits.

Implementation of environmental legislation (including multilateral environmental agreements) and other environmental measures is often quite weak in many developing and transitional countries (ECLAC and UNEP, 2022). More governance and effective participation are vital, as, as mentioned before and told by Geels in an interview for the EU (2015), the big players of different sectors sit with the policymakers to talk about the future and what policies are acceptable, feasible and workable (for them, and possibly from the RtC perspective).

This is the paradox of how sectors work together to resist change, but might find more difficulties to associate to make it happen, through systemic and common good-led action.

Also the ECLAC and UNEP (2022) state that Sustainability is restrained by cultural inertia, compounded by vested interests in the unequal distributional structure, (among) a variety of institutional shortcomings.

In regard to eliminating corruption in sustainability, as stated in The Guardian (2012) corporate policies must be driven by strong leadership, clear governance structures, best practice benchmarking, specialised due diligence, training, monitoring and review mechanisms, and effective channels for "whistleblowers". Those aspects might be translated to the public-private ecosystem of a country looking forward strengthening institutions and governance systems. Vested interests and corruption will be addressed with the third objective, in the context of Colombia, a developing economy with considerable levels of corruption, and politization of environmental affairs and sustainability-related decisions.

2.9. Resistance to Sustainability as a Political Phenomenon

Colombia is the most dangerous country in the world to defend the environment (Frontline, 2019), which reflects the existing governance difficulties and the vested interests in the country's natural resources. Deforestation has increased in the post-conflict framework, in the hands of individuals or organizations that promote the burning of forests - and the intimidation of their defending leaders- to make unplanned occupation and use of the land and its resources, or favour projects related to mining, livestock, agriculture (Gutiérrez et. Al, 2017) or infrastructure.

In line with this reality, the country's industrialists and several members of the congress oppose the ratification of the regional agreement on "Access to

Information, Public Participation and Access to Justice in Environmental Matters in Latin America and the Caribbean", alleging that "it would not be good for the development of the country" (El Colombiano, 2020).

In consequence, the opposition has often judged the negligence of the state with the protection of ecosystems, of environmental leaders, and the promotion of extractivist[6] projects and business as usual ('National Government, without the will to protect environmental leaders', [El Espectador, 2021]; 'extractivist "savage powers" that threatened to impose themselves from the central government', [Hincapié, 2017]; 'in Colombia the high courts have come limiting the effectiveness of constitutional popular consultations', [Bocanegra y Carvajal, 2019]).

For these reasons, the environmental and sustainable agenda is perceived as a "leftist" agenda ('Petroleum vs avocado, another populist nonsense', La República, 2018), when really the agenda is important due to the global climate crisis, the country's vulnerability to climate change, its potential to generate clean energy, the mega-biodiversity it possesses and that must be protected, its agricultural vocation as pantry of humanity, among others.

This cultural and institutional (macro) context, and vision of development, rules also the Urban Planning and Management dynamics, and it is important to take it into account.

Despite the transition management being an urgent matter for purely technical, ethical, and administrative reasons, and being a matter of collective interest with positive impacts for all, it is mistaken and frequently perceived as a political issue, which disfavours the situation of a sustainable management of the country and creates new tensions and environments of resistance.

2.10. Contribution of this study to the field / Research Gap

The Literature review and its synthesized findings applying the concept of resistance to change to sustainable management -as a management of change-, will enrich the framework of practitioners. Among the contributions are: the structural understanding of sustainability barriers, the possible reasons why the transition is not taking place through the implementation of high-impact solutions in cities and industry[7] -especially in the determined context-, and the development of tools to manage this resistance.

The literature about sustainable management is still limited, and so far, the studies about barriers to sustainability, sustainable development, or sustainable

[6] Εξτραχτιϖισμ: Το ρεμοϖε λαργε θυαντιτιεσ οφ νατυραλ ρεσουρχεσ τηατ αρε νοτ προχεσσεδ (ορ προχεσσεδ ονλψ το α λιμιτεδ δεγρεε), εσπεχιαλλψ φορ εξπορτ. (Αχοστα, νο δατε).

[7] λαργε ανδ μεδιυμ–σιζεδ χορπορατιονσ

management, have been applied to organizations; this study will have a special approach to decision makers or "high level" management of sustainability instead.

This work will also contribute to visibilize and discuss the relevance of corruption and vested interests in sustainable decision making (beyond financial, technical, technological, or organizational barriers). The discussion is from the perspective of the people working with incidence in sustainable solutions and public policy implementation in Colombia, a Latin American developing country, whose large resources allocation and care will be key for the near and distant future, both for a globalized humanity and for the region itself.

3. METHODOLOGY

3.1. Methodology summary

The context and motivation of this research is my previous and current experience as a sustainability manager, consultant, bridge-builder, independent facilitator and agent of change, connecting high impact solutions in sustainability with decision makers, and connecting the stakeholders for endorsing the transition to a low carbon economy (management of cities and industries), as well as proposing the concepts, tools and schemes to make it happen in a systemic, effective and agile way.

In this agency, I have permanently observed the different shapes of resistance to -sustainable, systemic- change and how important it would be for sustainability managers to be aware of this element in their work processes and interventions, and the need of including or considering it in their strategies, identifying and managing it. For this reason, the first person is sometimes used throughout the paper.

This is a **qualitative study**, with a **mixed strategy**, formed in the first instance by the **observation** and evaluation of the context that motivates the study, creates the hypothesis, and contribute to the interpretation of all the steps of the study.

The second element of the methodological strategy is the **Literature review**, which has two roles. First, it provides support to the hypothesis and provides a context for the other methods of interaction with the participants, and for assessing the data resulting from these interactions (surveys, interviews), with respect to relevant information from the field of knowledge or key concepts until now. The second, and subsequent role of the Literature Review is to provide the tools and knowledge already synthesized, to the outcome of the study and one of its objectives: to create an instrument to understand and manage the relationship of sustainability management with change agency and resistance to change, additionally making visible the role that vested interests play in this relationship, beyond known but -according to this study- secondary barriers such as financial, organizational, technological, technical or political; at least, in the context of a Latin American developing country.

The third and final element is the **surveys and interviews**, which are analysed taking the **axial coding** of the grounded theory to analyse and manage the results.

The entire study first follows a **deductive** path, from the macro of the theories and background, to the micro of the breakdown of its elements and of the interactions with the participants, returning from here, in an **inductive** path, towards the synthesis of the theory, and its provision in a new instrument, a “tool-box” to understand and manage resistance to change in Sustainability

Management and the relationship with vested interests in the context of this study.

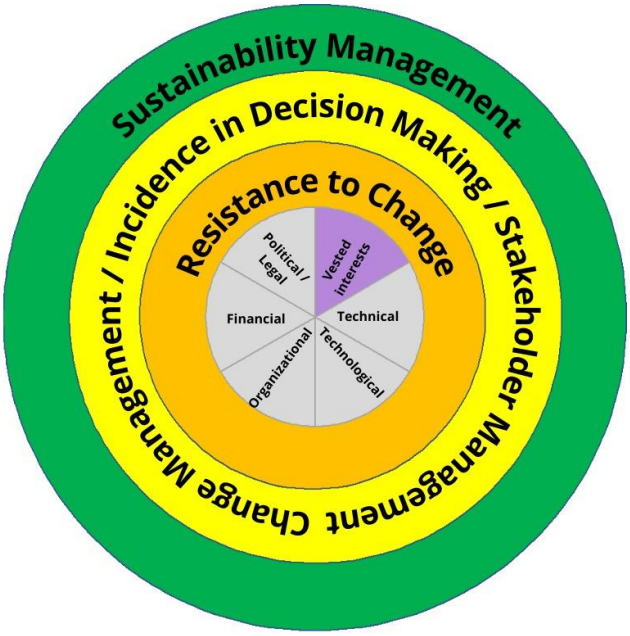


Figure 1 Thematical Selection. (Mejía, 2022)

Although the purpose is mainly to apply some theories and statements such as Harich's (2010) which states that resistance to change is the crux of environmental challenges, it is also expected to contribute to the foundations of Sustainable management, of which there is not much literature in itself, creating its connection with change management, and resistance to change, and Harich's resistance to change, with vested interests, proposing, as a practical and useful conclusion for the ecosystem, a hierarchy of barriers to "sustainability", -or in this case, to sustainability management-, already identified by other scholars, in order to gestate the real change and transition.

3.2. Methods Breakdown

3.2.1. Interviews and Surveys

To obtain the key information related to the objectives, and actively propose the reflection of the topic and the hypothesis, the methods of interview and survey were used.

In case of the Interviews, closed and open questions in exploratory interviews –with a basic common framework- were oriented to:

- Current decision makers; public and private leaders and "signers" of contracts, approvals and recommendations, and institutional officers. (Leaders of sustainability, Ministers and Secretaries, Majors and Governors)

- Former decision makers

- Innovators, developers and entrepreneurs that are offering high impact sustainable solutions to decision makers

- Researchers and referents of inter-institutional relations, economics, politics and sustainable development.

- Persons dedicated to influencing the implementation of high-impact sustainable solutions and public policies.

- Out of the eight people contacted, four replied positively: two Decision Makers (one current secretary of Environment and One Governor), one former decision maker (secretary of Government until May 2022) and one world reknowned expert in the field.

As for the surveys, closed and open questions were applied to:

- Innovators and Entrepreneurs working in solutions for sustainable management and decision making

- Current and former collaborators of relevant public and private entities in middle or high positions or areas related with any kind of decision making about technical implementations and purchases.

Due to the very niche characteristics of the profile requirements and the very busy agendas of the contacted people, the number of respondants is 14, out of 30 invited to participate. It is also worth mentioning that people with high level job profiles have little availability, and sometimes academic studies or exercises can be time-consuming and offer little or no specific practical results, which makes it challenging to find participants.

As an addition to these methods, a Focus Group was held with 4 people who work with incidence in sustainable management and decision making, addressing the topic of Resistance to Change (RtC) in this field. The insights are included in the coding of the interviews and surveys, even though the Focus Group has not been an official method because the number of people or sessions is not significant (the 15 high profile

invitees replied to the invitation, unfortunately only four were able to attend and the rest were excused).

The full transcript of the interviews, focus group, and survey format were attached in a repository available to academic reviewers only and are not included in this document.

3.2.2. Axial Coding

To analyse the data obtained from interviews and surveys, Axial Coding was used.

Axial coding is a qualitative research technique that involves relating data together to reveal categories within participants' voices collected. It is one way to construct linkages between data. (Delve, ND).

Axial coding is the second coding step of grounded theory, but it was applied as a tool, in an independent way, as with grounded theory, you are looking to turn your qualitative data (such as transcripts from in-depth interviews or focused groups) into a new theoretical framework (Ibid), and despite the fact that this study has an inductive final purpose, which is creating a tool box and, in that case, is a practical framework, it won't be a theoretical framework itself.

Corbin and Strauss (1999) developed a Coding Paradigm that defined six subcategories from which this study mainly used phenomenon (Resistance to Change), causation (barriers or reasons), strategies (tools), and context (sustainable decision making ecosystem). These were applied to classify the concepts and terms present in the data resultant from the interactions with the participants.

Quirkos qualitative data analysis software was used to group the codes and the respective categories.

3.2.3. Systematic Literature Review

Systematic literature reviews are recognized as "a standard methodology for locating, selecting, and appraising research and transferring the synthesized findings not only to researchers and academics but also to practitioners and policy-makers in a digestible format to inform action" (Denyer et. al. 2009; in Lood et. al. 2022).

Through this definition the election of this method can be understood, as the way of creating a synthesis of key concepts and connections between Sustainable Management, Resistance to change, Change agency, and vested interests in a handbook that can be helpful for practitioners. This outcome is the most important at the end of the process of information compilation through different means.

The literature complemented the contribution of the actors and participants helping to build consensus and enabling the transfer of information and ideas to a practical framework.

3.2.4. Approach

The approach of the methodology was deductive-exploratory in the first phase of the study, where theories and information in the literature worked as a context for the interactions, surveys and interviews, transiting from the general affirmations to particular findings that confirmed them.

After the codification, the creation of conceptual bridges, and the synthesis of all the information in a more general -practical- framework for sustainability managers, the exercise becomes inductive-conclusive.

From the nature of the Literature Review, and the critical evaluation of surveys and interviews results, connecting the findings of both methods with the research questions, it is descriptive and analytical.

4. RESULTS AND DISCUSSION

For better reading and understanding, the results will be shown according to the objectives and in their same order, as all methods were oriented to answer to the objectives as research questions.

4.1. The relation between Change Management, RtC and Sustainability Management

"Actors use power and politics
to resist fundamental transitions to new low-carbon systems"[8]

There are key findings in the literature, all of it very recent (after 2010) that, offered as a list of concepts, mental maps or graphic summaries, can bring much insight to the praxis of sustainability and contribute to its better understanding as a form of change management.

Tantram (2022), in one of the few articles found on sustainability management as such, states that "when sustainability managers offer the key information or provide a solution, they **are often hampered by resistance, apathy and misunderstanding". What is interesting about this affirmation is that it evidences the fact that the problem is not necessarily the lack of –sustainable-solutions, but something more. Is not the proper coupling between systems, but the change resistance of the system itself, the centre of the "sustainability problem" (Harich, 2010). Geels (2015) refers to it as the importance of** studying "incumbent regime dynamics" that resist low carbon –energy- transition, rather than focusing only on green niche-innovations, latter being the solutions that, even when viable, meet that resistance, apathy, and misunderstanding not only Tantram talks about, but sustainable entrepreneurs and innovators, sustainable decision makers or influencers of SDM, activists, etc.

[8] Γεελσ, 2014

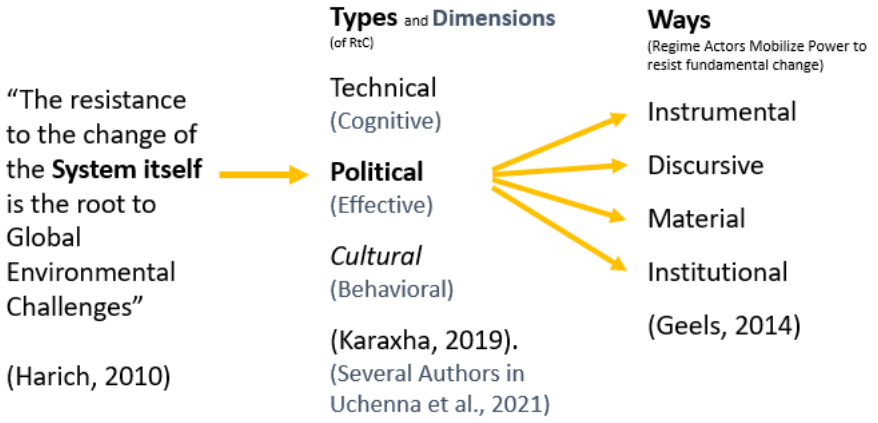


Figure 2 Breaking down Resistance to Systemic Sustainable Change (Meffa, 2022)

The figure 2 collects the statements of various authors and bring them together, conceding the major importance to the political type of resistance, as it is the scenario of power par excellence, and possibly one of the least studied in sustainability management as the main praxis stage. From the political scenario all the ways of resisting change and mobilizing power can be exerted.

The types of cultural and technical resistance, although related to some of the barriers found and discussed later, are not what occupies this study, since these types of resistance (cultural and technical) derive more evident barriers that are openly, extensively, and previously discussed by scholars, media, and stakeholders.

It is worth mentioning however, that cultural resistance may be closer than desirable to the political resistances that are more relevant to this study, but it is not possible to go into detail to define both.

This study's methods and objectives focused in finding and making visible, the non-evident or less obvious barriers to a sustainable systemic change. It means those beyond technical or technological readiness, lack of knowledge or information, and financial infeasibility.

"We're able to make paper from mining waste […]
that creates massive resistance
from the traditional paper industry"[9]

The results obtained both from the analysis and literary review as well as from the surveys, interviews and focus group, show and legitimize the relationship between the Sustainability Manager and the Change Agency, and therefore, the

[9] Gunter Pauli, Interwiewee 2, creator of the concept of Blue Economy.

resistance to change as a reality present in the practice of professionals of this area.

92.9% of the Influencers of SDM surveyed identify themselves as agents of change and state to implement change management strategies or tools.

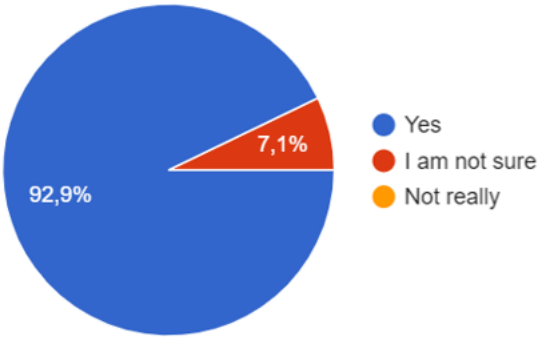
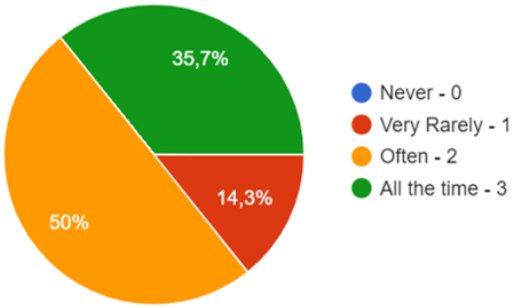


Figure 3 Answer to the question "As a sustainability manager, do you identify yourself as a change agent, and normally implement change management tools or strategies?" (Mejía, 2022)

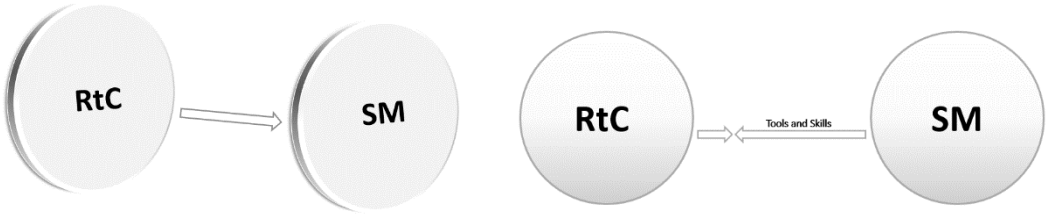
85.7% of the respondents express that they notice Resistance to SSC Often, or All the time. We can say this is an implicit relationship, which is not being talked about officially or actively from the construction of knowledge in the SM field, still very incipient.



Φιγυρε 4 Ανσωερ το τηε θυεστιον □Ηοω οφτεν δο ψου νοτιχε ρεσιστανχε (ορ ρελυχτα νχε) το συσταιναβλε σψστεμιχ χηανγε ιν δεχισιον μακερσ οφ πριωατε χομπανιεσ αν δ πυβλιχ ινστιτυτιονσ?□ (Μεφ ́α, 2022)

What this question contributes to is to pose a before and after in the Resistance to Change-Sustainability Management relationship (Fig. 5), because although, as has been mentioned, there is a relationship between them in the literature, it is still very incipient or of little popular domain in professional practice. It was convenient to make the corresponding conceptual bridges to achieve a more successful and assertive SM, which until now, has been held back by resistance to change without awareness of it. The actors of the resistance have been considered passive actors, when they are truly active. When the latter is recognized, it is possible to develop strategies and implement tools to manage

and reduce resistance to change. This contributes to a great change in the way of doing sustainability management.



Φιγυρε 5 Ρελατιονσηιπ βετωεεν ΡτΧ ανδ ΣΜ βεφορε ανδ αφτερ τηισ στυδψ (Μεφι α, 2022)

4.2. The values of Sustainability Management

Sustainability (and hence, its management) is associated by Starik and Kanashiro (2013) with a "basic" set of human values that contribute to the maintenance of life processes and efficiency; Innovation, evolution, learning, collaboration, tenacity, durability, adaptability, rationality, empathy, responsibility, justice, reflection, and spirituality are ones of the so called "sustainability values", all of which, to some degree, have in common the characteristic of contributing to the overall multilevel improvement of quality of life. Many of these values are also assigned to Change Agents by several authors and summarized by the ACPA[10]. This means that the literature relates closely the set of values of the Sustainability Manager and the Change Agent or Manager.

Below the comparison made between the set of values of Starik and Kanashiro, and the ACPA's Literature review. The "assimilable" values have been placed next to each other, evidencing the similarity between the lists made by different authors.

[10] ΑΧΠΑσ Πρεσιδεντιαλ Τασκφορχε ον Συσταιναβιλιτψ. Χολλεγε Στυδεντ σ Εδυχατορσ Ιντερνατιοναλ. ηττπσ://χιτεσεερξ.ιστ.πσυ.εδυ/ωιεωδοχ/δοωνλοαδ?δοι=10.1.1.178.9073&ρεπ=ρεπ1&τψπε=πδφ#:~:τεξτ=Ιν%20ορδερ%20το%20βε%20α,(μοτιωατιον)%3Β%20ανδ%203

Change Agent Values (ACPA's Lit review)	**Sustainability Values** (Starik and Kanashiro)
Resilient	Durability
Committed	Responsibility
Tenacious	Tenacity
Patient	
Empathetic	Empathy
Ethical	Justice
Curious	Innovation
Emotionally intelligent	Adaptability
Self-Aware	Reflection
Competent	Learning
Assertive	Collaboration
Persuasive	Rationality
Passionate	Spirituality
Optimistic	Evolution
Authentic	

Figure 6 Comparison of Sustainability Values and Values of the Change Agent (Mejía, 2022)

In that line, psychology states that resistance or support to change are associated with values, habits, and mental models within the individual (Harich, 2010). The values become more relevant in the following results related to ethics and corruption, a contrary behaviour, or alien to the nature of sustainability. However, it appears that the paradigm of sustainable resource management requires values such as resilience and innovation, to permanently "fight" resistance to change; a struggle that, if given in a systemic and transversal manner, with all sectors and stakeholders, requires educational and pedagogical tools that include empathy and assertiveness in order to inspire others and displace fear of change with enthusiasm and expectations based on new knowledge.

Knowledge that must be accessible to create empowerment and governance. Notions like patents, exclusivity, and confidentiality are a double-edged sword for sustainable issues like climate action, and get in the way of agile, scalable, simultaneous, joint work in various parts of the world as needed.

Simple and open source technologies are necessary tools, -being realistic and strategic-, highlighting the values of sustainability, which put the desired results and the most efficient way to achieve them first.

4.3. The Surfer (and kinds of Sustainability Managers)

"I surf waves, I don't make waves,
If there is a resistance, I'm not there,
I don't convince anyone"[11]

[11] Ιντερωιεωεε 2 (I2). Γυντερ Παυλι. Χρεατορ οφ Τηε Βλυε Εχονομψ.

There are SMs that work for Bottom-up change, from the communities; and SMs that influence public policies and are dedicated to transform the practices of large companies and cities, working on a Top-down change –in which this study focuses.

Often these two classes of SMs share the speech, and values, one of which is stoicism, but the second interview brings another perspective, where there is no intention on the part of the SM to manage or counter the change resistance. This is a relevant finding, as we then see a SM that does not "create a wave of change" but only "surfs it when available". In this scenario, values such as tenacity and collaboration are slightly transformed, and a different attitude from that of the typical SM, -changemaker, and although realistic, guided by ideals-, emerges.

This means that important figures in sustainable management (like the interviewee) who could be exerting an influence on central actors and points of resistance in the system –for their prestige-, are not part of the "collective effort" of the great networking for -*The- Change* (change in capital letters, systemic, more radical), but they are doing businesses, implementing projects and solutions in an isolated or territorial way (lowercase, incremental, localized change), explaining how part of the possible force is not being applied to the desired feedback loop of structural, Top-down change.

It is possible that like I2, many SMs are more business managers dedicated to respond to the opportunity when it comes, than change agents that create or issue solutions for the resistance itself, as the main barrier to overcome to create sustainable cities, industries, economies and systems, as the interviewee himself recognizes when he states: “the centre of power, is the centre of resistance”.

The fundamental contradiction reveals when he also states “Change happens in the periphery and never in the centre”. Because the periphery will always be small scale. If the change is not central, or cannot reach the centre of the system, it’s not radical, so it is not possible to talk about only radical change and totally disruptive models –as he does-, when at some point the peripheric changes are still satellite, and hence dependant, or related with the current –old fashioned- system.

We can then speak of classes of Sustainability Agents with different working modes, engagement, and scopes; and proportionally, differently related with Resistance to Change. The surfer, that awaits to be called or offers intervention where the chances are good. The "exhibitor" who shows and offers solutions and alternatives but renounces or adapts to inertia if he is rejected or not heard (mostly employed by companies and institutions); And finally, the activist or "warrior", who insists and transforms the message and the strategy to achieve change, and responds to the values mentioned above (entrepreneurs, innovators –inventors or developers-, independent consultants, activists,

scientists), but this is a topic that –although worth to mention- was not covered within the scope of this study.

4.4. The most reluctant sector

Respondents belong almost identically to the various sectors, public (28.6%), private (35.7%) and third (35.7%). This though, was not intended, and unexpected.

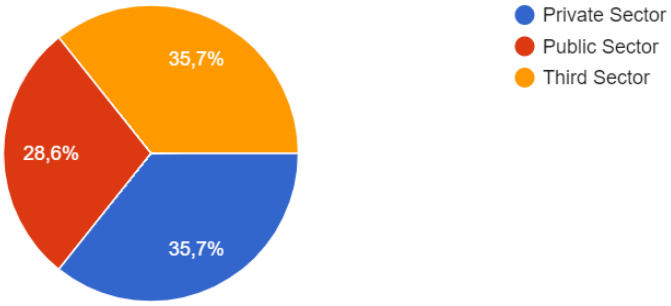


Figure 7 Origin of the survey respondants. (Mejía, 2022)

When asked about which sector is more resistant or reluctant to change, the public or government sector was the winner, however by a small difference. Those who have worked more there voted equally for the public and private sectors; those who have worked more in the private sector indicated that they have noticed more resistance in their sector (3 out of 5), but the group that made the difference was the Third Sector, where 4 out of 5 indicated that the public sector is the most resistant to change. This provides an interesting perspective, since the third sector, which may be the "neutral" between the two, working permanently with stakeholders from both, indicates a greater resistance from the public sector, quite possibly associated with greater bureaucracy due to the very nature of the processes, with more demands, and therefore with greater execution difficulties. This would be an interesting topic for future research.

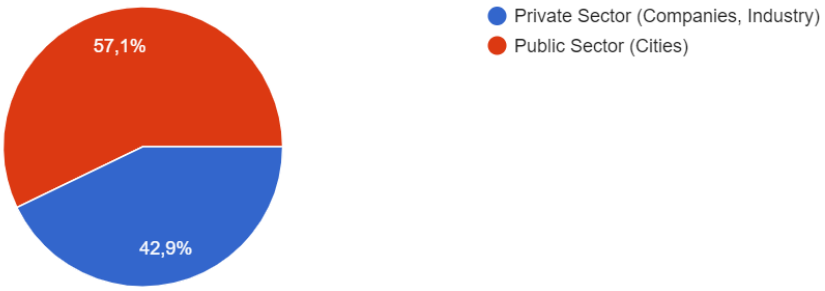


Figure 8 Answer to the question "In which sector do you think Decision Makers are more reluctant to systemic sustainable change" (Mejía, 2022)

4.5. -Non-evident- barriers for implementing sustainable high impact solutions in high level decision making.

"In the end what you're dealing with is systems,
so it's not just a decision and
it's going to have a lot to do with the regulatory
framework, the market, in some cases corruption,
which influences the will"[12]

In the Focus Group all the participants coincided in the fact that there are barriers beyond the viability itself (non-evident barriers). This is a key question and answer for the approach of this study, because it allows to see beyond the barriers already addressed and attacked in different scenarios, with small-scale results like those mentioned in the section 4.1.

The 201 codes derived from the review of all sources give rise to 4 main categories, vested interests, convenience and ethics (as one), models and paradigms, fear, and lack of knowledge.

Figure 9 (Non-evident) Barriers to Sustainable decision making and sustainable management (Mejía, 2022)

Some of the significant barriers found both in the surveys and interviews, and in the literature review were:

- **Fear** (of the unknown, legal, economical or other consequences) **and bureaucracy** (Bauer, 1992)
- **Status Quo,** (Harich [2010] defines RtC as the tendency for a system to continue its current behaviour, despite the application of force to change that behaviour) stablished contracts and agreements or familiar models or paradigms, like **inflexible legal frameworks.**
- **Lobbying and lack of a long-term view** (Barrow, 2006).

[12] I4. Σεχρεταρψ οφ Ενϖιρονμεντ οφ Βογοτ⟨.

- Convenience and Vested interests. (Geels [2014] states that the big players of different sectors sit with the policymakers to decide which policies are viable)

- Economic convenience and profit (short term utilities, different from financial viability or cost analysis).

In Figure 10 is a more detailed list of barriers with subcategories created according to the main codes.

Fear	The Natural (Psychological) reaction of Fear of Change Distrust Legal Consequences Economic Consequences Social Sanction Institutionalized Fear
Models and Paradigm	Cultural Model (Habits and models of thought) Predominant Narratives Competition, Exclusivity, Confidentiality Ethical model and Rights Economic Model Legal Framework The Market Land Use Model Institutional Models Procurement Scoring Systems Lack of vision and understanding (short term view) Bureaucracy Administration Changes and Timeframes
Vested interests, convenience and ethics	Rigged Public Policies and Laws Regulatory Capture (Culture of) Corruption and Hidden Interests Lack of comittment, Indiference (EGO) Unbalanced preponderance to economics (wrong priorities) Conservatism despite Negative impacts (RtC) Power, Politics (and Economy) The Negative Feedback Loop Corruption-Natural resources
Lack Of Knowledge	There is a lot of ignorance. Mechanisms to implement solutions are often unclear Unclear whether capacities should be built in-house or should be subcontracted Weak business cases Communities lack knowledge that allows solutions appropriation

Figure 10 Barriers to Sustainable Managing and Decision Making beyond viability and readiness (Mejía, 2022)

These barriers could be classified in the bigger or macro categories of Henriquez and Catarino (2016), and Lood et al. (2022). Below, the 8 categories, also applicable to –urban- sustainability management, are shown, with a hierarchy and specific relationship proposed between the 4 more relevant to the context of this study:

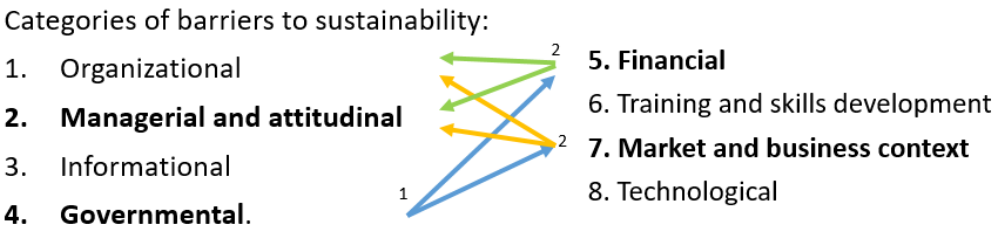


Figure 11 Categories of barriers to sustainability by Henriquez and Catarino (2016) adapted by Lood et al. (2022), with own interpretation (bold text and coloured arrows). (Mejía, 2022)

According to the research questions and results, the barriers are classified by their importance or impact from greater, or global (located higher up in the system), to lesser, or local (speaking of actors, institutions, organizations, etc. further "down" in the system, if we talk about vertical hierarchies). The interaction indicated with blue arrows come first, the one with yellow and green come later.

The Government creates the regulatory framework and with it the scope and approach of sustainability in an economic system (like the ambition, if we speak in terms of NDCs[13]), creates the conditions or the "terrain" for the market and businesses, as well such as financial and fiscal incentives. Eventually, the government is also fed back by businesses and important players in the financial system, which, as the literature and the participants in this study widely state, influence the changes –or permanence- of the laws and regulatory frameworks for contracting or purchasing.

These sectors (financial and businesses market), and their conditions, end up defining the consumption and production scheme, by determining supply. They are the place where organizations are created, live and compete, and create their imaginaries and paradigms.

The other barriers, such as information and technology, are considered derived from the 4 barriers in bold.

Regarding the organizational or institutional, some authors argue that change is resisted from both the lower position and the higher positions in the hierarchy, and pushed by middle management (Alter, 1985; Streicher, 1984; in Bauer, 1992). This perspective is interesting because it could suggest that the lower the risk, the greater the initiative, since those in higher positions have a

[13] Νατιοναλ δετερμινεδ χοντριβυτιονσ

lot of visibility and therefore pressure, and those in lower positions may have less initiative, and fear of losing relevance due to components of change, as well as less autonomy to think in a disruptive way. The Focus Group, although with different positions on what level the resistance is most found in the organizations, concluded that they are all interdependent, so they co-participate in the resistance. Let us remember that Tantram mentions that sustainability needs authority to take place in organizations, and that means there are always some with the responsibility, or the possibility of making the decision, who have more power of execution, or establishment, or transformation of the model, and are in a better position to lead the change; but that is precisely the heart of the matter, leadership, one of the tools exposed in the results later.

4.6. A legal framework with no chances for sustainable change

"The truth is that many public officials
make decisions based on fear
because these types of decisions
can end up putting you in jail"[14]

Despite the fact that there are multiple green policies, documents, and commitments such as the NDC, the national law on climate change, the national plan for green growth and CONPES documents - the highest national planning authority - on sustainable mobility, sustainable buildings, among others, in the practice, everything translates into the public contracting and procurement law in Colombia (Law 80. Fig 12), an inflexible law closed to innovation and sustainable change, which is an important root of backwardness for various reasons -according to the last interview-, that prevent decision makers from being able to improve the management of cities and public companies environmentally and in terms of sustainability, and that leaves no room for any type of maneuverability until it is modified by Congress.

Below are the most significant findings related to it in the interview.

4.6.1. Scoring Systems of procurement

In the bidding processes, when there is an innovative proposal, even if it is competitive, it would show a higher degree of "documented uncertainty", which leaves it out because the reliability is questioned. Also, if the change means the costs are the same, but not less, it will not be favoured.

[14] I4. Σεχρεταρψ οφ Ενϖιρονμεντ

"Inefficient institutions persist because there are very large path dependencies"[15]

4.6.2. Competition principle, preventing innovation

If a unique or innovative solution is presented to public entities, it cannot be adopted if it does not have –multiple- competitors, if there are not several bidders for the same product or service, closing the door to innovation and evolution of practices and technologies.

An innovation is precisely a novelty on the market. If a great solution or sustainable technology (whether in mobility, waste, water, energy, construction, etc.) is presented to a public spending authority, it cannot order its contracting or purchase, since it would be judged by the authorities for assigning contracts directly, which is seen as a crime, by favouring. This is a root cause, and one of the greatest importance, for countries like Colombia not being able to move forward.

"There are structural, systemic issues that have not allowed us by will alone to move forward fast enough"[16]

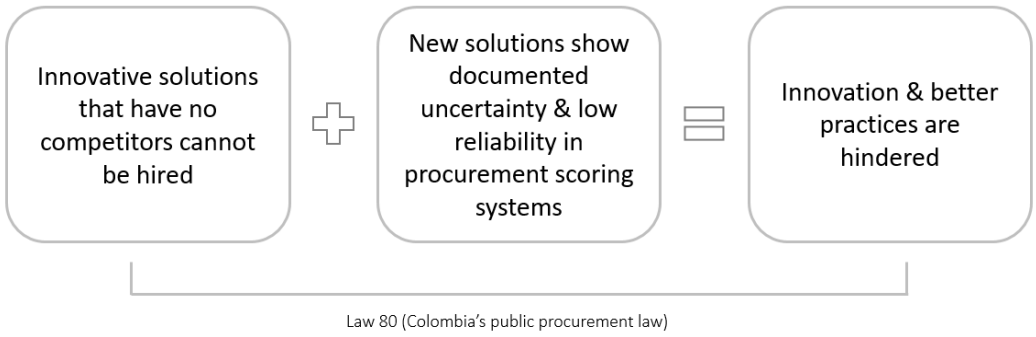


Figure 12 - Colombia's public procurement law and how it hinders innovation (Mejía, 2022)

4.6.3. No space for creating incentives.

While in many cities, such as Buenos Aires, the collection of organic waste is not charged in the city's sanitation charges to motivate citizens to separate them, in Colombia it is prohibited to provide public services without charge, which blocks the possibility of creating some incentives as in this case, and with them, new dynamics.

[15] I3. Φορμερ Σεχρεταρψ οφ Γοϖερνμεντ.

[16] I4. Σεχρεταρψ οφ ενϖιρονμεντ.

The official says about it: “The most efficient thing would be to change the incentive structure” but, “the sense of productivity of a public official has made everything so excessively regulated that it is very difficult to have that space, (…) even when international experiences say that is the way for it to work.

4.6.4. Contracts with technologies, not with objectives.

Another factor that the secretary pointed out is that it would be easier, or possible, to make the relevant changes if the contracts were not assigned to specific technologies or suppliers, but were governed by objectives and results. Thus, when there is a new technology or way to achieve results, in a cleaner or more efficient way, it could be implemented.

4.6.5. Excessive surveillance

The fact that there are too many entities in charge of monitoring the operation and actions of public entities (comptroller, attorney, oversight, legal representation and control) also sometimes creates a very small field of action, and increases fear in decision makers of unexpected legal or other consequences, as mentioned in the “barriers” section.

This is a coincident point of the interviewee and the participants of the focus group. Although these entities should be there to ensure the transparency and quality of decisions; being governed by an inflexible and impractical legal framework, they are entities feared for being able to find some administrative defect that, more than really affecting the citizenry or the public treasury, deviates minimally from the indicated norm, diverting attention from the action taken -even if is good-, towards the way it was taken, again, according to a legal framework that favours a status quo, even if it is not aligned with the supposed new priorities of the national government and the cities.

This is the paradox of Colombia. Despite being a normative example for the Latin American region, since it is a pioneer in laws on many issues that other countries have not addressed, it has so many laws, regulations and entities; that instead of playing in favour of public management, they paralyze it, and hinder the possibility of even beginning to generate success stories, and with them, traction for a new economy.

4.7. The wide concept of convenience and vested interests

In the process of coding and grouping the barriers, it became clear that corruption is a barrier that is only *a nuance of a structural ethical problem* of a model (economic, political, cultural) with wrong or poorly established priorities. Many codes were associated with the primacy of personal and business interests, even to the detriment of what is environmentally correct, the most responsible, and even efficient decision. The category is not only vested interests but also includes convenience and -finally- ethics, because the ethical problem is subtle and wide, showing itself from the convenience and *obstruction of innovation protected by the legal framework*, to open acts of corruption and blackmail.

The ethical problem emerges with the "overvalued preponderance of the economic aspect"[17] where the greatest profit in the shortest amount of time is the most important or what favours a decision, being "profit" a better weighed value than "wellbeing" or positive impact. The core of this ethical problem, according to the analysis of all sources, is the primacy and dilemma of individual rights (EGO), over the collective rights (ECO).

4.7.1. The impact of vested interests in the sustainable decision making and management

For most growing economies that have large reserves of natural resources, corruption is widely known as the major cause of natural environmental destruction[18] and it increases emissions[19].

When asked about the importance of corruption, convenience and vested interests as a barrier to the implementation of sustainable practices (technologies, infrastructures, etc.), placing it on a scale of 1 to 5, most of the respondents' answers located in the middle levels (from 2 to 4) with a small majority in level 4.

[17] Συρϖεψ ανδ φοχυσ γρουπ.

[18] Ωορλδ Βανκ (2010) ιν Γανδα (2020)

[19] Γανδα, 2020

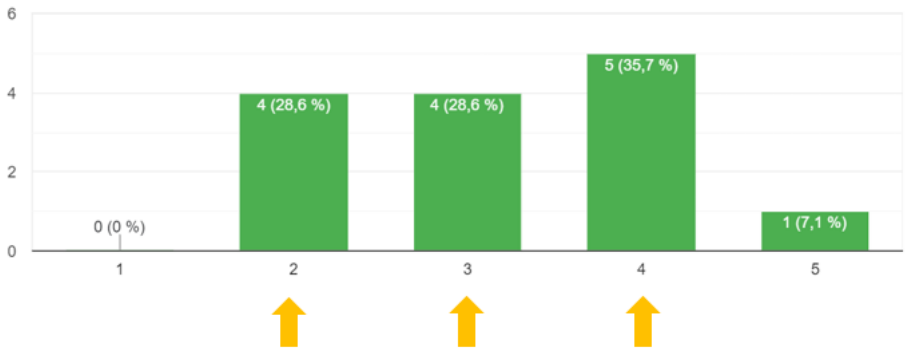


Figure 13 - Answer to the question: "How much have you perceived or experienced corruption or vested interests (convenience) as a barrier to the implementation of sustainable practices (technologies, infrastructures, etc.?" (Mejía, 2022)

Corruption and Resistance to Systemic Sustainable Change are intimately related, and are more incident in Developing Countries according to different studies and scholars. Imasiku (2010), for instance, state that public goods abuse and bribery are -corruption and- one of the greatest barriers to sustainable development. Ganda (2020) studied it widely in the countries of South Africa proving that when corruption affects the sectors, environmental sustainability initiatives will be inadequate in improving the state of the natural environment, the study counts with support data from significant institutions like the World Bank and OECD that have extensive literature on the matter, such as the UN and the World Economic Forum that points out corruption has the potential to undermine the successful implementation of all 17 SDGs (2019).

Figure 14 - Word cloud with the codes of the subcategory of barriers "vested interests, convenience and ethics" (Mejía, 2022)

4.7.2. Regulatory Capture

"I cannot change the contracts
until I am clear about how I solve the business
for them, otherwise, what I take away is
a crazy number of lawsuits"[20]

The fact that the political framework itself legitimate the status quo, makes it more complex to show the impact of personal or small groups' convenience over urban collective interests, sustainability, wellbeing and quality of life. There, the relevance of acknowledging it and its importance, conceptualizing the regime actors as actively resisting fundamental change, rather than seeing them as an inert or passive part (Geels, 2014) who simply does not contribute to the desired feedback loop of fundamental change.

The fourth interview revealed a key concept for this –ethical- question: Regulatory Capture, which consists basically in the fact that the traditional providers of technologies, services or materials of the brown economy, benefited by an existing law or contract, shield themselves behind them so as not to change, be replaced or asked to adapt and invest in new –sustainable- business models, despite the fact that this hinders possibilities of improvement for a greater number of actors and generates a greater social, economic and environmental benefit, or lengthen its time horizon.

"*The powerful have the facility*
to protect the laws
that protect their interests"[21]

Most of the times, these existing contracts (such as those of waste collection and landfill management) are longer than the government periods so it is difficult to create change from urban decision making in the framework of a government programme, and the existing legal framework and protocols protect and perpetuate the current linear, unsustainable practices. Latter that, if find themselves threatened due to a sustainable initiative, impose numerous lawsuits defending their interests, alleging menace to their heritage and their "economic freedom".

[20] I4. Σεχρεταρψ οφ ενϖιρονμεντ. Ταλκινγ αβουτ διφφερεντιατεδ ωαστε χολλεχτιον φορ τη ε χιτψ.

[21] I4. Σεχρεταρψ οφ Ενϖιρονμεντ.

Before moving on to discuss the tools it is worth to put in simple words the big picture and background of all these behaviours. A Systemic Change Requires Endeavor.

And that is a summarized explanation of why it is mostly not happening. The whole undertake is hard and challenging, and there is no Leadership to take it forward. One of the respondants of the survey stated “decision makers are often overwhelmed for the level of effort it requires”. The institutions (market and legal framework) are not prepared and hence the solutions look complex and unreachable, because of course, it will always be easier to keep doing what we know, as we have been doing it; in a way in which Environment and Natural Resources quality and availability are not a priority.

If there is not a long term view, with enough understanding of the consequences and a clear value scale, there are not enough drivers for acting intensely, locally and globally, as happens with a pandemics, for instance. What is seen is a huge lack of commitment of directors, politicians and institutions (as also stated in the survey) which work from comfort. And there is a great laziness, lethargy, and inertia, both collective and individual. This inertia brings to a cycle of lack of cooperation and believe because as soon as someone wants to make change, meets all these barriers. The feeling of impotence, brings resignation, and more inertia.

4.8. Tools or skills on how to create Top-down systemic sustainable change and deal with resistance to it among decision makers.

In the literature, many tools were found to manage or counteract Resistance to sustainable change according to scholars; from the “critical enablers” of sustainability for SMEs by Lood et. Al. (2022), to the methods for handling resistance of Karaxha (2019): communication, support, participation, negotiation or agreement, manipulation, and compulsion. All these tools from the literature were coded with those directly and implicitly suggested by the participants of the study, creating a pool of tools categorized into the following 7 subgroups or categories:

Figure 15 - Categories of tools and skills for managing or counteracting resistance to SSC (Mejía, 2022)

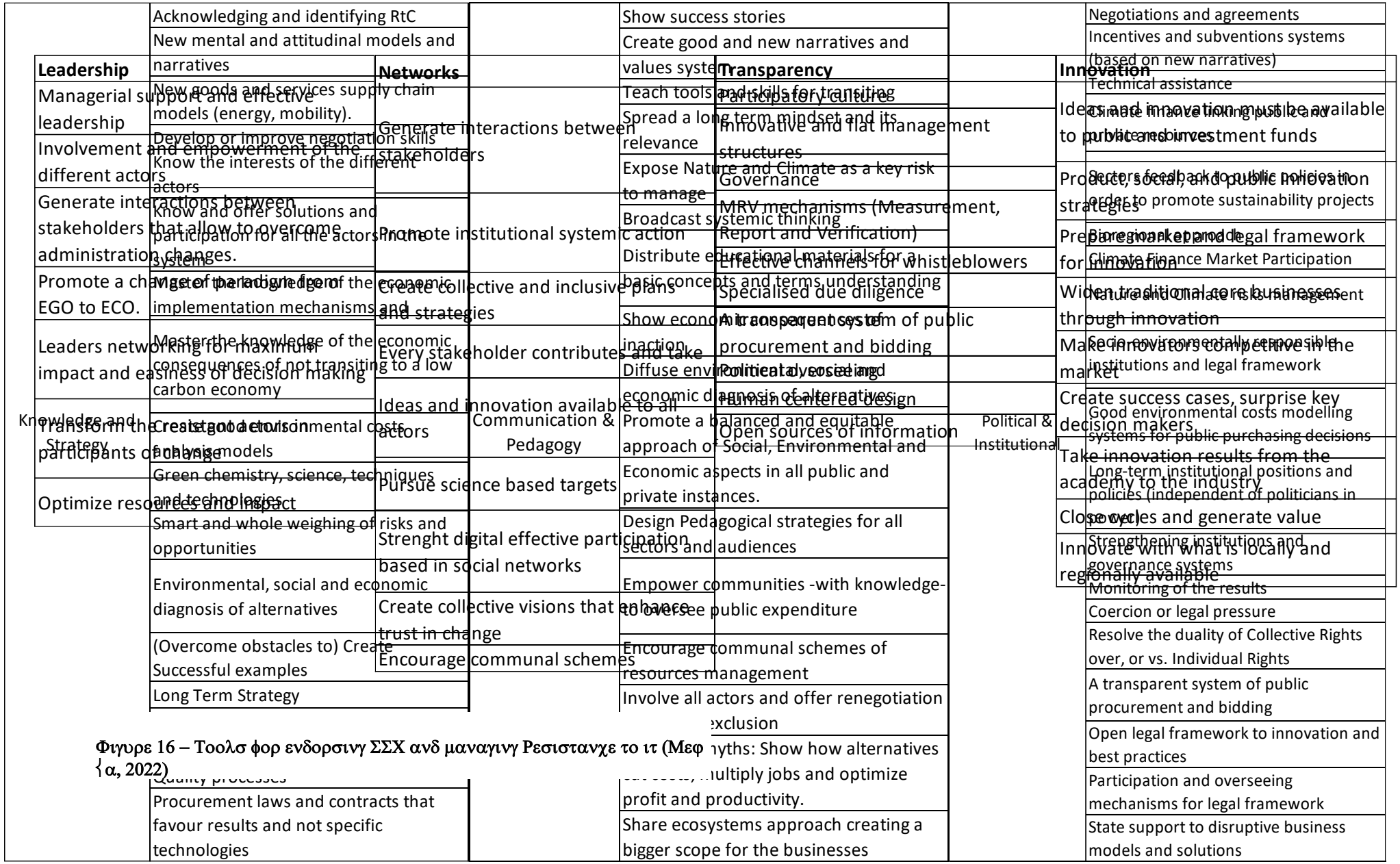
The principal groups of tools are "Knowledge and Strategy", "Political and institutional" and "Communication and pedagogy". The other four groups derive from them or are somehow related or dependant to them.

It is worth to highlight five phrases or codes provided by the participants - through the various methods- that would not have been possible to classify under just one category. All of them corresponded to four different categories meaning they are transversal, and key guidelines for the toolkit. These codes are:

- Resolve the duality of Collective Rights over, or vs. Individual Rights.
- Create or endorse communal schemes.
- Ideas and innovation must be available to public and investment funds.
- Nature and Climate as key risk to manage
- Traditional businesses can expand their core business and be part of the change instead of resisting it.

They will not be discussed individually or in detail because they are already considered in the Figure 16 in the pages 47-48 and would be specific activities of a systemic action for structural change (Fig 18).

The figure 16 shows the three main and four auxiliary subgroups including their main codes.



Φιγυρε 16 – Τοολσ φορ ενδορσινγ ΣΣΧ ανδ μαναγινγ Ρεσιστανχε το ιτ (Μεφ α, 2022)

Tools, as a reflection of barriers can be like them classified into the following categories: organizational, managerial and attitudinal; informational; governmental; financial; training and skills development; market and business context (behavioral); and technological (fig. 10). Or even higher in the conceptualization (towards the generalization) can be instrumental, discursive, material or institutional, as it will be shown in figure 16.

These tools, used in conjunction and contrast with the pool of barriers, can help consultants, collaborators, and work teams to identify problems or challenges, and put a name to situations that are otherwise difficult to mention or uncomfortable to put on the table, prioritizing solutions and designing strategies to improve from the business, organizational and institutional.

This whole tool kit can also be used by each Influencer of SDM in the design of their strategies, and for pedagogy, communication, empowerment and participation strategies, mainly by high-level *networks* and project teams for sustainable development, as the identified barriers cannot be fought in an individual way, and the presented tools need to be implemented systemic and simultaneously.

5. CONCLUSIONS AND RECOMMENDATIONS

Acknowledging there is a resistance to a Systemic Sustainable Change, and developing tools and skills for managing it -addressing the underlying dynamics of power and decision making- is key for creating better and more assertive Sustainability Management. Like that, articulated endeavors against the climate crisis and the unsustainability of cities and industries -and their vast consequences- can bear fruit.

Awareness on the negative feedback loop *Corruption-Less natural resources* widely described by some scholars and mainly by the large international cooperation and development organizations must be raised. Because in the end, acts of corruption, or conditioning of legal frameworks for benefit of unsustainable practices, vulnerate the availability of vital resources for all. This is still a niche topic, and it must go beyond small publications to generate great awareness and different dynamics of power, production and consumption.

Much of this resistance associated with private interests, is not always shown openly as acts of corruption, but is nested and normalized in legal frameworks. That means that even though in environments where power is highly centralized, an individual decision maker can exert great resistance to change; when a person in a strategic position wants to contribute to change, he/she experiences that RtC is mostly systemic, and the current legal and institutional framework –in Colombia as in many other countries- favours and shields the status quo, hindering change (often called regulatory capture). Here is where tools like pedagogy (diffusion of knowledge), participation, governance and transparency are of the utmost relevance.

There is no long term vision in the institutions, but there are long term commitments and contracts that block the possibilities of change, innovation, or adaptation. Sustainability is not understood, is seen, mistakenly, as a “plus”, or a luxury, and not as a smart whole solution, especially in developing countries. This is because of the poor environmental-costs analysis models and the lack of diffusion of successful and cost-efficient solutions, currently not present enough in the market for all the barriers mentioned.

In developing countries, urban sustainability legitimation would start showing results of effectiveness for tackling poverty, hunger, poor housing conditions, and public services supply. In this way, the participation and empowerment that have been reduced or absent due to skepticism, could be activated, fighting the fear of the transition of citizens of different social classes, contributing to generate social pressure, governance and oversight of sustainable laws and policies. This has to happen through communal schemes, while also green lobby and true leaderships are working in the Top-down change.

As stated by Barrow (2006), Sustainable Management is a form of decision making; it is, as a matter of fact, a *decision itself*, and it needs to come from the centres of power. All the activities and efforts of the SM lose validity when the main context

of decision making (laws, or the country, city or company plan) is not aligned with these. Thus, there is no sustainable management without decision making. The Sustainable Management is a vision of a system, is the reflection of the values that move that system or on which it is BASED.

The relationship RtC-SM (main findings and results) can be visualized as follows in Figure 17:

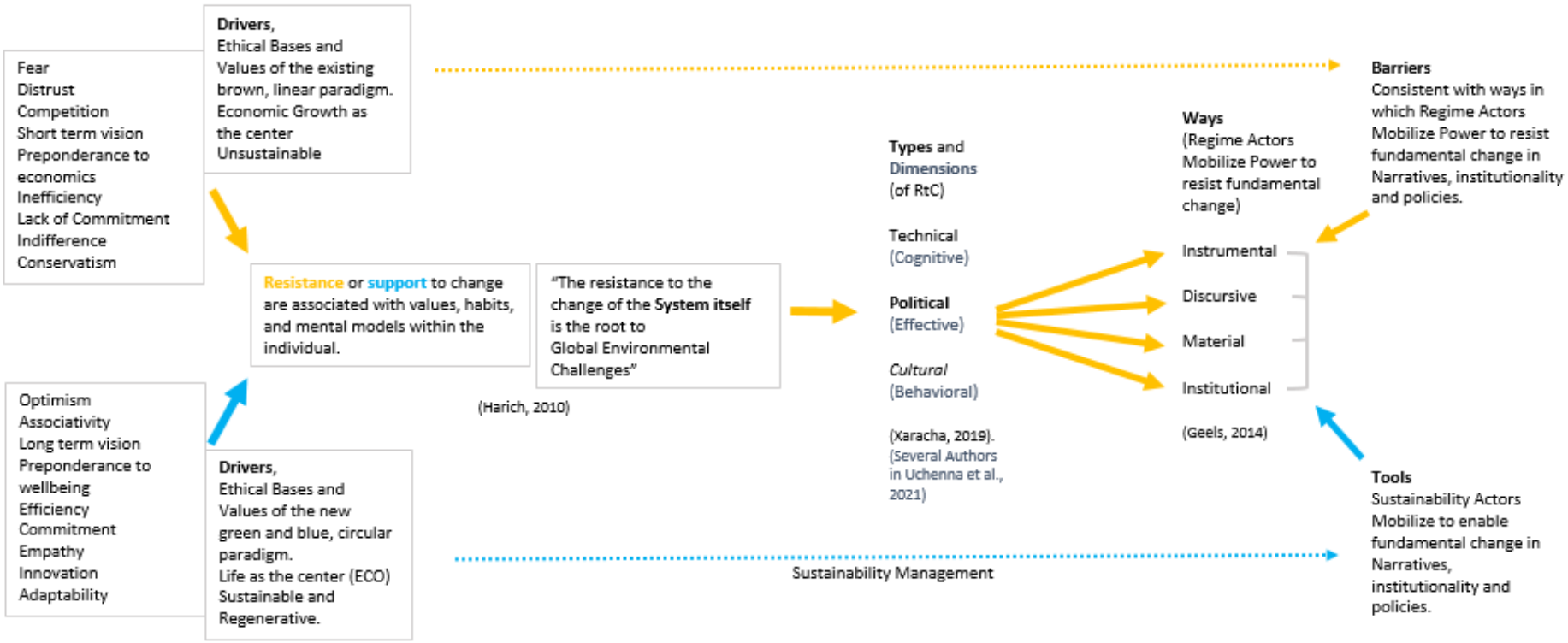


Figure 17 - Breaking down the relationship RtC-SM (Mejía, 2022)

There are value systems and habits that constitute support, or resistance to change; understanding that the management of the resources and the design of an economic model is an ethical matter is of the utmost importance to review and understand the values and drivers (intention, as said by Bouckenooghe in 2010) of the actors of resistance to sustainable change. All the other barriers, such as the economic and political ones, are derived from the ethical bases of the current paradigm and dominant narratives.

Resistance is essentially political –as it is change- as it dwells at the centre of the system and the agendas of power, manifesting itself in various ways that materialize in the different barriers. On the other hand, the Sustainable Management manifests itself through tools that can also be instrumental, discursive, material, and institutional, to favour a fundamental change in the system and the agenda of power (economic and political).

Sustainability Managers are interdisciplinary professionals with a mix of organizational knowledge, policy knowledge, leadership, and change skills, but the way in which these agents experience and deal with RtC is essentially different, depending on variables such as professional background and role, personal values and motivations, and the degree of closeness or relationship, of autonomy or dependency, with the centres of power or the different levels of institutionality. This study has only brought an approach to that topic.

Based in the analysis of the tools –and barriers- and the resulting categories and relations between them, a model of cycles in ascendant spiral (Fig. 18) is proposed for the seeking of a Systemic Sustainable Change, where the base is the knowledge (of information, technologies and techniques, science, facts) and the expertise in strategies for leading the change mobilizing different actors and interests through communication and pedagogy. It is understood in this model, that if key actors (citizens and decision makers) get to know and dimension key information; habits and decisions can be re-evaluated through transparent and effective mechanisms of participation (governance), reflecting in the public policies, legal and institutional frameworks, which finally shape new or improved financial and market scenarios, scaffolds of the economic model.

Figure 18 - Ascendant spiral of SSC (Mejía, 2022)

According to the priorities and scale of values of the current paradigm, the big solution to Resistance to the Sustainable Systemic Change must be economic (be expressed in economic terms). Economists and financiers are the profiles of Sustainable Management who probably have the greatest part in responding to the crisis in the terms that the current system is expecting it, managing resistance with an alternative economic model that is at the same time low in carbon and functional to meet the demand for energy, food, water, housing, among others, of the population.

The successful management of this resistance has to do with the inclusion of the same centres of power in the benefits generated by alternative and sustainable economies. The challenge is to transcend their own barriers and preventions to show them the functionality of the solutions and lead them to carry out pilots and full implementations.

For Harich, it is a 'false assumption' that "change resistance occurs at the level of individuals and can thus be overcome by the inspiration, exhortation and bargaining", but, even when the resistance is mostly systemic, if the right actors of the system, like policy makers and high-level investors, are "inspired", well informed, and exhorted, the resistance might give space to change. This is to say that, although minimally, the right individual does have a potential margin of affectation of the system, with which he is in permanent feedback as a decision maker.

To increase the chances of individual decision makers contributing to sustainable change, the risk involved in making decisions must be divided or dissolved, because many sustainable decision makers are threatened by the possible consequences of making decisions in a system that is not prepared for them or whose inflexibility

punishes them. Managing and reducing this risk is vital to empower decision makers.

Sustainable and systemic change should be above administration changes and should not be in the hands of individual political will; especially because the design and development of financing mechanisms and vehicles, incentives, implementation of high-impact solutions, important contracts or simply legal modifications take considerable time. In many occasions, when these initiatives are barely ready to be implemented, expire with a change of government, and never come into effect. Therefore, policies related to land use planning, public services and the use and impact of natural resources and ecological structure must be based on principles decided in a participatory manner, accessible to the private sector and civil society, where the current ruler can only decide on budgetary or technical details, which do not change in essence the points mentioned without transparency for all the actors and mainly, on a technical and scientific support that seeks the greater good of the majority (similar as it exist already for some projects of national interest).

Finally, the challenge of sustainability is to be understood as a technical matter that generates social, environmental and economic benefits and should not be conceived as an ideological matter.

Opportunities for future research are in the topics below:

- Testing or discussing *strategies* that are and are not being implemented, and why they do work or not, and their intervening conditions.

- The survey yielded results of greater resistance from the public *sector*, which makes sense according to what has been said about the legal framework, and quite possibly associated with greater bureaucracy due to the very nature of the processes, with more demands, and therefore with greater execution difficulties. Nevertheless, the sample is not yet significant enough and it would be interesting to further explore this topic and the different ways in which RtC is expressed in the public and private sectors.

- It is a fact that, based on important international calls such as the Paris agreement, some multinational giants are conducting market research to make changes to their business models. Research is needed on how this transition from resistance to adaptation is taking place, beyond the understanding of new economic opportunities in the scope or imminent risks for their business. Also on what is the *time curve* of these actions of change, and if they affect, and how, the possibilities of a real transition, with a clear time horizon.

- Politics as the scenario of power par excellence, and thus also the main praxis stage of –regional or national- sustainability management is a relevant topic for future research.

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