Counterhegemonic Narratives of Innovation: Political Discourse Analysis of Iberoamerican Countries

Carolina Bagattolli* and Tiago Brandão**

** Department of Economics, Public Policy Postgraduate Program, Federal University of Paraná (PPPP/UFPR - Curitiba, Brazil)*

***NOVA-FCSH, IHC* – Instituto de História Contemporânea, *New University of Lisbon | Faculty of Social Sciences and Humanities, Portugal*

ABSTRACT

From the 1970s onwards, changes in economic theory began to draw attention to the relationship between economic growth and technological innovation. Technological innovation has come to be considered fundamental to boosting international trade, increasing productivity and generating more and better jobs, among other benefits. However, more recent academic narratives began to change through considering the importance of technological innovation for social purposes such as social inclusion and sustainable development. This recovered the concept of social innovation and alongside the development of a plethora of alternative innovation concepts – such as sustainable innovation, open innovation, responsible innovation, green innovation, among other "x-innovation" concepts (Gaglio et al. 2017). Nevertheless, little is known about the extent to which these counterhegemonic concepts emerge and feature in Science, Technology, and Innovation (STI) policy discourses. In this sense, this article aims to understand the use of "x-innovation" concepts and the role attributed to innovation for (allegedly) counterhegemonic purposes in the STI national policies of Iberoamerican countries within the framework of disclosing the specificity of this discourse.

Keywords: Science, Technology and Innovation; Discourse analysis; Political discourse; Iberoamerica; National Plans.

INTRODUCTION

From the 1970s onwards, changes in economic theory began to draw attention to the relationship between economic growth and technological innovation (Lundvall & Borrás 2004; Nelson & Winter 2005; Freeman & Soete 2008). Technological innovation has thus now come to be considered as fundamental to boosting international trade (Krugman 1990; Lall 2000), reducing costs (Penrose, 2006), increasing productivity (Nelson, 2006), and competitiveness (Fagerberg 1996), while generating new – and better – jobs (Garcia; Jaumandreu & Rodrigues 2002; Harrison et al. 2006), among other benefits.

However, more recent narratives about innovation began to advocate the role of innovation for counterhegemonic purposes, beyond (or at least hereinto) business competitiveness and economic growth. Approaches to innovation have also included its essential role for social purposes such as social inclusion, sustainable development, among others. This change results from a simultaneous process of appropriating and challenging the concept of innovation from the perspective of social values and criticizing technological innovation in the hegemonic discourse, given its strong economic connotations. In this sense, the concept of 'social innovation' re-emerged in conjunction with the proposition of a plethora of alternative innovation concepts – for example, 'sustainable innovation,' 'open innovation,' 'responsible innovation,' 'green innovation,' among other "x-innovation" concepts (Gaglio et al. 2017, p. 4).

These discourses convey messages and shape behaviors. "What governments say is as important as what governments do" (Dye 2013, p. 66). This means they grasp the intentions behind these discourses, as well as the socio-political contexts in which they developed, hold relevance to the policy debate. Nevertheless, little is known on how these counterhegemonic concepts are actually incorporated and presented in Science, Technology, and Innovation (STI) policy discourses.

Accordingly, the OECD report entitled *Megatrends affecting science, technology and innovation* precisely demonstrates the international awareness regarding these revamped visions on innovation discourses: "New concepts such as social innovation, frugal innovation, inclusive innovation and social entrepreneurship are leading to new innovative business models and can contribute to a more inclusive approach to innovation." (OECD 2016, p. 17)

The European Union also provides an updated 'state of the art' rationale, especially prolific concerning the conceptual frameworks and correspondingly adopting the most sophisticated discourses from academia. In the report *New Horizons: Future Scenarios for Research & Innovation Policies in Europe*, a policy formula is set out whereby innovation represents the ends and the means for solve all sorts of economic and societal challenges.

> "The end result of all this will be an enhanced positive impact of R&I* on the achievement of a range of EU policy goals, as well as on growth and on the well-being of EU citizens. Europe and its knowledge economy will be competitive and serving society. Social innovation, business model innovation, governance and institutional innovation contribute to success." (EUROPEAN COMMISSION 2017, p. 60)

The Footnote (*) even duly gives warning that 'Research and Innovation' should henceforth be understood in "the broadest sense of the term" (EUROPEAN COMMISSION 2017, p. 60), therefore by "including ICT, biotechnology, life sciences, nanotechnologies, renewables and other green technologies and eco-innovations as well as *social innovation, business model innovation, governance* and *institutional innovation*" (*Idem* p. 60). Thus, the days when innovation ought simply to be a matter of production processes and market products now seem long gone.

In fact, this does constitute an ongoing 'movement' in academic and international forum milieus that results from a simultaneous process of appropriation and contestation. This appropriation falls within the terms presented by Gaglio et al. (2017) when demonstrating – by historical documental analysis – how people "appropriate a word (innovation) for its value-leadeness" (p. 4) down throughout history. "A word such as

polysemic as innovation is a multi-purpose world" (idem) that hence explains the plethora of alternative concepts of *technological innovation*: "Over the twentieth century, linguistic appropriations proliferated in the literature" (p. 5). In this sense, our goal involves extending the analysis made by these authors in considering the usages of the innovation concept in defence of social values and correspondingly therefore challenging technological innovation in the hegemonic discourse.

Most intuitively, the narrative presented in adopting these alternative concepts maintains that a different kind of innovation is needed to generate desirable social impacts – such as inclusion, sustainable development, the democratization of knowledge. This 'social dimension' to innovation would encapsulate the scope for eliminating the unintentional consequences or the undesired effects of technological innovation couple with a new mantra of 'more innovation in the social' and 'more social in innovation' (Gaglio et al. 2017, p. 9). Such narratives are able to influence the social imaginary and potentially impacting Science, Technology and Innovation policy processes.

In this sense, the goals of this paper are to map and analyse the deployment of these "x-innovation" concepts and the role attributed to innovation for counterhegemonic purposes in the national STI policies of Iberoamerican countries. By undertaking analysis of the political discourse presented in these strategic documents, we aim to enlighten the general understanding on how political discourses and conceptual uses border political actions and, in this way, anticipating the kinds of changes the public should expect from those policy narratives.

This paper is therefore organized into three sections. The first attributes significance to this kind of conceptual debate and the meaning of these discourses to policy analysis. The second section then presents our empirical study and the framework applied to dealing with the research corpus before the third section delves further in our findings, conducting a discussion on the trending discourses and the 'x-innovation' concepts that

emerged from our empirical analysis. The final section puts forward a summary and some concluding remarks.

1. THEORETICAL FRAMEWORK, METHOD AND OBJECTIVE

Ever since *The Argumentative Turn* in the 1990's, Policy Analysis has increasingly focused on the argumentation process as an essential variable not only within the political cycle but also as an analytical dimension for consideration in empirical studies. Discourses and narratives express messages, model behaviors and build the frameworks that shape policies. As Majone stresses (1989, p. 1) "…public policy is made of language. Whether in written or oral form, argument is central in all stages of the policy process". The very definition of the policy problem arises from an argumentation process more than any strictly 'rational analysis' (Stone 1989). Symbolic languages thus become tools in the hands of public actors.

In this sense, political discourse constitutes a relevant dimension for policy analysis. We here conceive such discourse as defined by Fischer & Gottweis (2012, p. 12), "…[covering] all of the topics that would come up in matters political—concepts, terms, theories, relevant policy issues, and the like…". Our efforts are thus more closely focused on identifying the effects of the communication process than contemplating the formal validity of arguments or even the eventual policy results.

As regards the methodology, due to the significant amount of information, we opted to organize the research corpus through recourse software specifically designed for qualitative analysis and correspondingly enabling the categorisation of the different concepts under study. This kind of methodology has already served as the basis for some intellectual and conceptual research in the innovation studies arena. For example, the Mónica Edwards-Schachter transdisciplinary approach deployed a database and 'coded

categories' for the compilation of the 'social innovation' definitions in the academic literature (e.g., Edwards-Schachter and Wallace 2015, p. 15). Additionally, Benoît Godin's (e.g., 2008, 2015) intellectual history project applies some of the techniques we adopted here in terms of mixing qualitative methodologies, combining content analysis, linguistic categories (such as 'semantic field', 'polysemy', 'appropriation', etcetera), with appeals to authorship perceptions from the intellectual history disciplinary praxis in addition to the genealogical type approach drawn from the history of ideas field.

Along with this policy analysis discursive perspective, this builds up a framework particularly relevant to comparatively analysing changes in the discursive spaces of the Science, Technology, and Innovation (STI) policies in Iberoamerican countries over the 2000s. Some political actors have come to advocate the role of innovation for counterhegemonic purposes, in addition to (at least hereinto) business competitiveness and economic growth. This emerges as counterhegemonic in the Gramscian sense, revealing contradictions and tensions in what has hitherto been virtually consensual (hegemonic) (Gramsci 1971, Williams 1977).[1] Counterhegemonic, in this sense, means the original intention of some scholars in proposing new policy frameworks (Godin 2009), which were generally formulated to challenge the Neo-Schumpeterian mantra of innovation as a systemic approach for a strictly benign process of 'technological change' (and its social correlation, entrepreneurship), without considering the unintended consequences of Schumpeterian 'destructive creation' – or, alternatively, the social and environmental consequences of modernization, progress or material development. This counterhegemonic trend reflects in recent years in the application of concepts such

[1] Regarding the concepts of hegemony and counterhegemony, there is acceptance that Gramsci did not use the concept of 'counterhegemony' with this term corresponding to an interpretation of Gramsci's concept of hegemony from a critical perspective (e.g. Konder 2002 and Coutinho 2006, 2007): "To paraphrase Marx, it can be said that all hegemony carries within itself the germ of counter-hegemony. There is, in fact, a dialectical unity between the two, one defining the other. This is because hegemony is not something static, a ready and finished ideology. A living hegemony is a process. A process of struggle for culture." (Coutinho 2008, p. 77) The concept of counter-hegemony is also associated with that of resistance as a result of the work of Cultural Studies. (Souza 2013, pp. 55-56) However, the concept of counter-hegemony is not a formulation of Gramsci, but was added to the Gramscian theoretical corpus, most notably by Raymond Williams in his work entitled Marxism and Literature (1977, p. 114, 116). Henceforth, the counter-hegemony concept has been associated with Gramsci's thinking.

'inclusive innovation', 'responsible innovation', 'eco-innovation', among other "x-innovation" concepts (Gaglio et al. 2017).

> "Like many other adjectives attached to "innovation" nowadays (e.g.: responsible, frugal, user-centered), it suggests a new normative aspect for innovation, in comparison with the dominant view (economic imperative, key for growth). This normative aspect includes moral issues, environmental respect, participation of new populations (the poor, the users) and reflectiveness about the consequences of innovation." (Godin & Gaglio, Forthcoming, p. 8)

Although the efforts to drive innovation for these purposes are less expressive in many cases than expected, when not strictly symbolic policies, these discourses convey messages and are able to shape behaviors. This thus reflects how grasping the underlying intentions holds relevance to the policy debate.

In sum, by carrying out analysis of the political discourse present in national plans and strategic documents, our goal is to understand the role awarded to innovation for counterhegemonic purposes (i.e., in addition to economic growth) in the STI national policies of Iberoamerican countries while also seeking to disclose the specificities of this discourse.

2. EMPIRICAL FRAMEWORK: ANALYSIS OF POLICY DEFINING CONCEPTS

To guide the empirical endeavor, we chose Content Analysis (Bardin, 2016) as the research method. Thus, the empirical analysis was correspondingly organized into three phases: 1. Pre-analysis, 2. Material scanning and, 3. Treatment and interpretation of results. Figure 1 details the steps included in each phase.

The pre-analysis started with the floating lecture – our first contact with the documents. Subsequently, we initiated the choosing of the documents, defining, out of every kind of policy document existing (national plans, legislation, speeches, policy evaluations, among others) just what would be subject to analysis. In keeping with our

goal, we decide to limit our analysis to national plans as they are the type of document in which governments (usually) express their positions and intentions in any particular field of public policy. The research corpus was established according to the principles of exhaustivity, representativeness, homogeneity, and pertinence. We therefore analysed sixteen policy documents from 8 (eight) Iberoamerican countries – especially national Science, Technology and Innovation Plans: Argentine, Brazil, Chile, Colombia, Mexico, Spain, Portugal, and Uruguay. Together, these countries account for 93% of total expenditure on Scientific and Technological Activities in the Iberoamerica (RICYT 2018) – which conveys the sample's representativeness. Despite the differences among them being large, as our analysis here is strictly qualitative – concerning the narratives and not budgetary, infrastructure or other scale variables according to country size – we consider this does not compromise the methodological approach. The number of documents varied by country mainly in accordance with to documentation available. Table 1 provides some information about these documents.

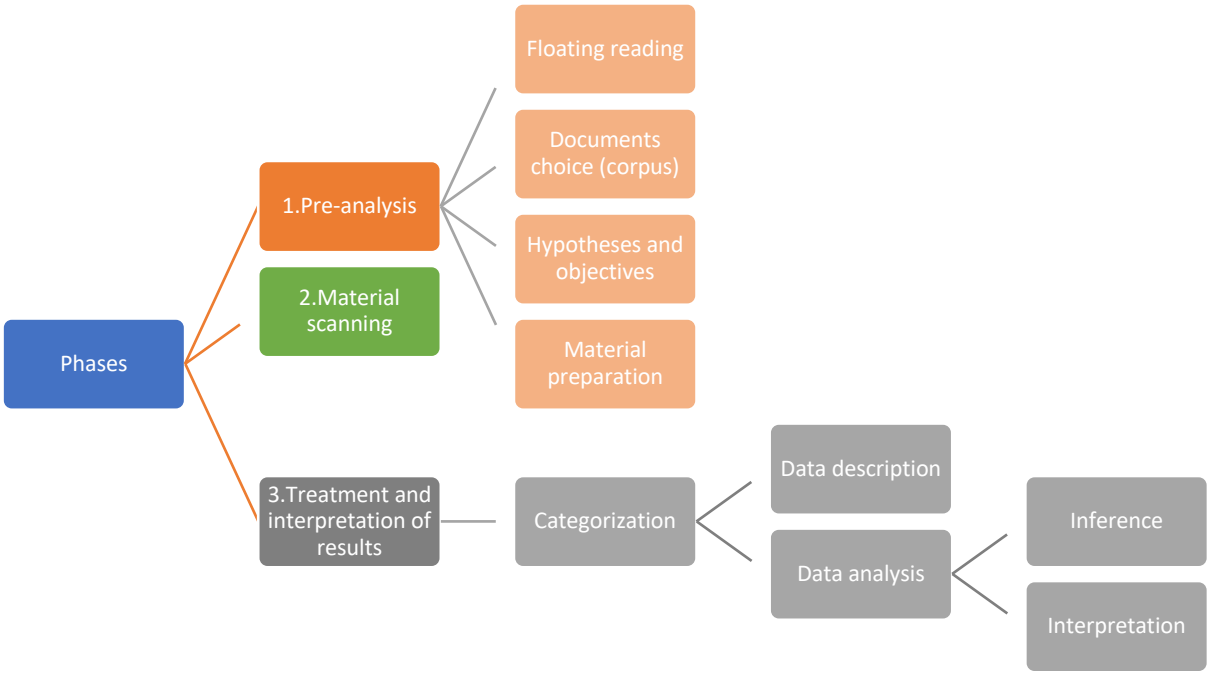

Figure 1 – Content analysis phases
Source: prepared by the authors based on Bardin (2016).

Table 1 – Selected policy documents by country

Country	Document	Number of pages
Argentine (AR)	*Plan Estrategico Nacional de Ciencia, Tecnologia e Innovacion "Bicentenario" (2006-2010)* [National Strategic Plan of Science, Technology and Innovation "Bicentennial"(2006-2010]	99
	Argentina Innovadora 2020: Plan Nacional de Ciencia, Tecnología e Innovación - Lineamientos estratégicos (2012-2015) [Innovative Argentina 2020: National Plan of Science, Technology and Innovation – Strategic Guidelines (2012-2015)]	140
Brazil (BR)	*Diretrizes de Política Industrial, Tecnológica e de Comércio Exterior – PITCE (2003-2006)* [Guidelines for Industrial, Technological and Foreign Trade Policy – PITCE (2003-2006)]	23
	Plano de Ação de Ciência, Tecnologia e Inovação para o Desenvolvimento Nacional (2007-2010)	406

	[Action Plan of Science, Technology and Innovation for National Development (2007-2010)]	
	Estratégia Nacional de Ciência, Tecnologia e Inovação (2012 – 2015) | *Balanço das Atividades Estruturantes (2011)* [National Strategy of Science, Technology and Innovation (2012-2015) | Balance of Structuring Activities (2011)]	220
	Estratégia Nacional de Ciência, Tecnologia e Inovação (2016-2022) [National Strategy of Science, Technology and Innovation (2016-2022)]	136
Chile (CL)	*Plan Nacional de Innovación (2014- 2018)* [National Innovation Plan (2014-2018)	16
Colombia (CO)	*Plan Estratégico Institucional (2007-2010)* [Institutional Strategic Plan (2007-2010)]	23
	Libro verde 2030: Política Nacional de Ciencia e Innovación para el Desarrollo Sostenible [Green book 2030: National Science and Innovation Policy for Sustainable Development]	64
Mexico (MX)	*Programa Especial de Ciencia y Tecnología (2008-2012)* [Special Program of Science and Technology (2008-2012)]	68
Portugal (PT)	*Um Compromisso com a Ciência para o Futuro de Portugal: Vencer o Atraso Científico e Tecnológico* [A Commitment to Science for the Future of Portugal: Overcoming Scientific and Technological Delays]	12
	Plano Tecnológico: uma estratégia de crescimento com base no Conhecimento, Tecnologia e Inovação [Technological Plan: a Growth Strategy Based on Knowledge, Technology and Innovation]	57
	Diagnóstico do Sistema de Investigação e Inovação: Desafios, forças e fraquezas rumo a 2020 [Diagnosis of the Research and Innovation System: Challenges, Strengths and Weaknesses towards 2020]	306
Spain (ES)	*Estrategia Española de Ciencia y Tecnología y de Innovación (2013-2020)* [Spanish Strategy for Science and Technology and Innovation (2013-2020)]	43
	Agenda Ciudadana de Ciencia e Innovación (2011) [Citizen's Agenda of Science and Innovation (2011)]	100

Uruguay (UY)	*Plan Estratégico Nacional de Ciencia, Tecnología e Innovación (2010)* [National Strategic Plan for Science, Technology and Innovation (2010)]	56
TOTAL		1769

Source: prepared by the authors.

In keeping with our previously defined research objectives, after establishing the corpus we moved onto the indexing process and developing the indicators employed in the textual analysis of the selected documents. The pre-analysis phase revealed four usages of the term *innovation* in Science, Technology, and Innovation (STI) national plans:

1. Characteristics and constraints of the innovation process.
2. Innovation as a goal.
3. Innovation as a means (to achieve):
    a. Economic purposes.
    b. Social purposes.
    c. Both (economic and social purposes).
4. Concepts of innovation:
    a. Established innovation concepts: such as technological innovation, business innovation, organizational innovation, marketing innovation.
    b. Counterhegemonic ("x-innovation") concepts: such as social innovation, inclusive innovation, open innovation, among others.

Among these, the last two categories emerged as the most relevant for our analysis. They correspondingly (i) identify the role assigned to innovation for economic purposes (growth, competitivity, productivity, international trade, generating employment) and to social purposes (social inclusion, reducing inequality, sustainable

development) and, (ii) refer to counterhegemonic innovation concepts. After defining the most relevant categories, we then prepared the material for analysis by the WebQDA®[2] software program. The option of making recourse to a software for data analysis stemmed from the sheer amount of material and the need to facilitate analysis and interpretation.

We began the material scanning (phase 2) by searching for radical "inov," in documents in Portuguese (from Brazil and Portugal), and "innov," in documents in Spanish (further countries). All the usages of "x-innovation" concepts or mention of innovation as a means to achieve economic or social purposes were categorized and codified separately by WebQDA® in keeping with the aforementioned categories. Finally, we advanced to the treatment and interpretation of the results phase.

In total, we identified seven different "x-innovation" concepts in the corpus as set out in Table 2.

Table 2 – Usages of "x-innovation" concepts

"x-innovation" concepts	BR	AR	CL	CO	MX	EX	PT	UY	Occurrences of the concept
Associative innovation	-	2	-	-	-	-	-	-	2
Environmental innovation	-	-	-	1	-	-	-	-	1
Inclusive innovation	-	11	-	2	-	-	-	1	14
Open innovation	2	-	-	-	-	3	2	-	7
Responsible innovation	1	-	-	-	-	-	-	-	1
Social innovation	1	2	1	2	-	3	-	2	11
Sustainable innovation	-	3	-	-	-	-	-	-	3
Occurrences by country	4	18	1	5	0	6	2	3	39

Source: prepared by the authors

[2] WebQDA® - Qualitative Data Analysis Software. Available at: https://www.webqda.net/?lang=en.

Preliminary analysis identifies how the use of "x-innovation" concepts is uncommon and much less frequent than might otherwise be expected given their recent abundance in the literature (Boons and Lüdeke-Freund 2013; Cajaiba-Santana 2014; Carrillo-Hermosilla et al. 2009, 2010; Chesbrough 2003; Edwards-Schachter and Wallace 2015; Edwards-Schachter 2018; Howaldt et al. 2014; Owen et al. 2012; Pol and Ville 2009; Stilgoe et al. 2013; among others). This profusion of accounts might stem from several different concerns but mostly seems to be the consequence of two contemporary trends; i.e., the process of innovation democratization (Hippel 2005) and a symptom of proposing innovation as the modern panacea and buzzword for the resolution of all human problems.

The main change in the narrative encapsulates the scope of technological innovation from which the benefits would reach far beyond economic progress (Table 3). This may suggest that more than the incorporation of these counter-hegemonic innovation concepts into policy documents – which would reflect some degree of agreement with academic criticisms of the potential of technological innovation for social needs – national governments instead mostly continue to defend how technological innovation *per se* is capable of achieving social goals. In other words, the critical content around technological innovation, expressed by the adoption of alternative and counter-hegemonic innovation concepts (usually targeting social goals such as social inclusion, reducing inequalities, environmental sustainability), rarely get identified in the policy documents covered by our analysis.

By examining the counter-hegemonic concepts that we encountered in the national plan sample (Table 2), we may observe that two emerge most frequently: inclusive innovation (14 occurrences in total) and social innovation (11 occurrences). However, mentions of inclusive innovation are strongly concentrated in just one country

(Argentina accounting for 11 of the 14 occurrences). [3] This correspondingly means that, after pondering the frequency across the eight countries analysed, the most common "x-innovation" concept is actually social innovation. Nevertheless, as we shall discuss below, this concept is not always employed in the policy documents with the social connotation observed in the literature.

Table 3 – Citations of technological innovation as a means to achieve economic and social purposes

Countries	Economic purposes	Social purposes	Economic and social purposes	Total
Brazil	53	17	13	83
Argentina	18	9	6	33
Chile	4	2	0	6
Colombia	1	0	5	6
Mexico	12	8	1	21
Portugal	17	0	0	17
Spain	11	8	7	26
Uruguay	5	3	4	12
Total	121	47	36	204

Source: prepared by the authors

Regarding references to 'innovation' as a means of achieving economic or social purposes, as expected, we may report far more citations of innovation for the purpose of achieving economic goals (Figure 2): increasing efficiency, productivity and competitiveness; stimulating investments, reducing production costs, raising the value added; promoting international trade and, in sum, generating economic growth, new (and better) jobs, and boosting the level of national income.

On the other hand, we have the narratives considering technological innovation in its own right as the sufficient means for achieving social goals: bringing about reductions in poverty, social inclusion and equality; increasing quality of life and wellbeing,

[3] This might be explained by the greater level of politicization perceived in Argentinian civil society in keeping with a certain autonomy and awareness of the social movements there, at least in comparison with other peripheral countries. (Fausto & Devoto 2004, p. 43-44)

generating regional development and progress coupled with environmental protection. Although far less frequent than those advocating economic purposes, they still rank as more common than the adoption of "x-innovation" concepts.

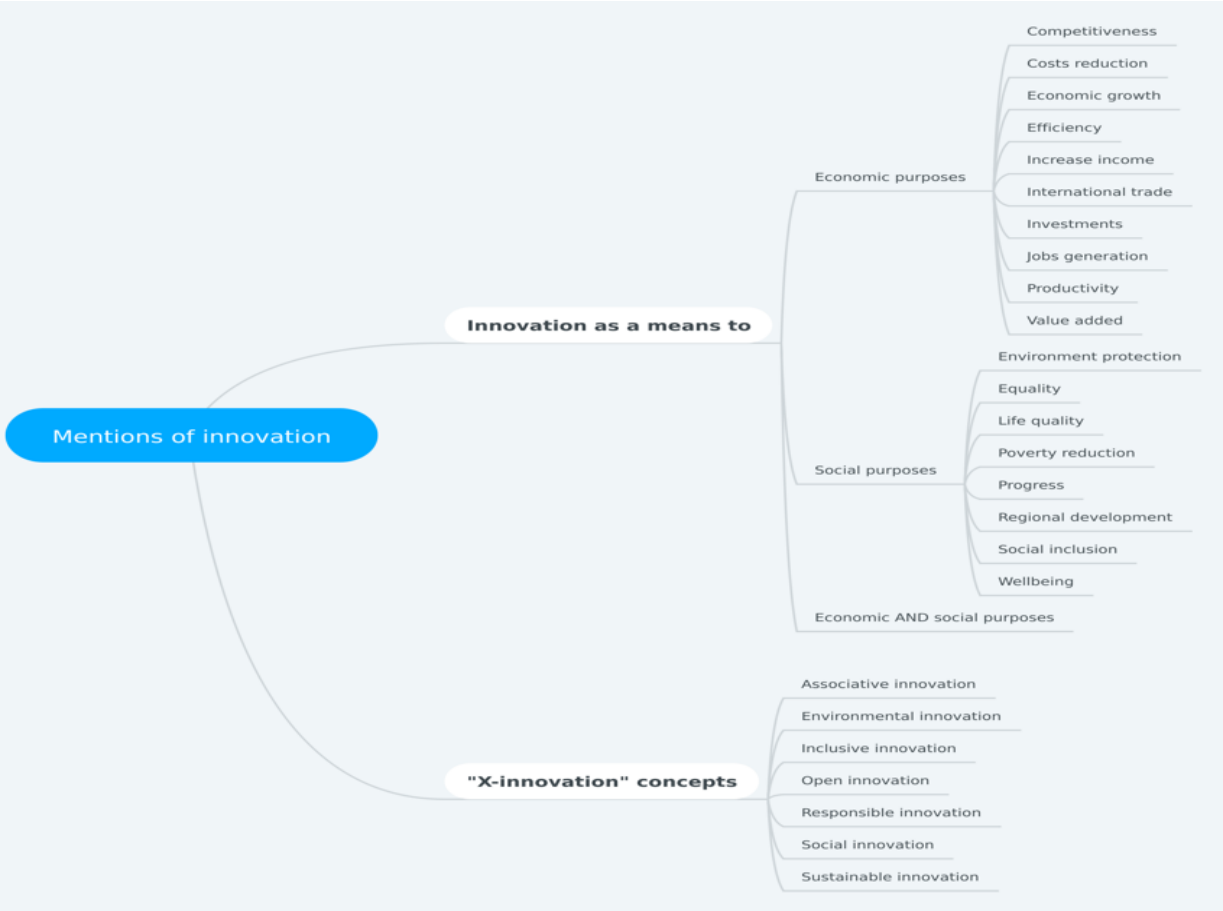

Figure 2 – Identified mentions of innovation as a means to economic and social purposes and "x-innovation" concepts
Source: prepared by the authors

There are also references to the simultaneous innovation potential for both economic and social purposes. Adding these citations to the analysis (Table 4) still further emphasises the lower adhesion of official documents to the academic production involving these alternative innovation concepts. Once again, this would seem to demonstrate that there is a prevailing view amongst policymakers that they do not need

to consider other kinds of innovation beyond the technological type. The only country analysed with a different policy discourse correlation, between technological innovation for social purposes *versus* counterhegemonic innovation concepts, is Argentina, which (as mentioned) may well reflect the broader politicization of the debate compared to the other Iberoamerican countries alongside the greater influence and inclusion of academic actors within policy milieus as well as political alignments more open to adopting such new, legitimizing discourses for ST&I policies.

Table 4 - Citations of technological innovation as a means to achieve social purposes *versus* "x-innovation" concepts

Countries	Technological innovation as a means to social purposes or economic and social purposes	"x-innovation" concepts
Brazil	30	4
Argentina	15	18
Chile	2	1
Colombia	5	5
Mexico	9	0
Portugal	0	2
Spain	15	6
Uruguay	7	3
Total	83	41

Source: prepared by the authors

When assuming the emergence of these counterhegemonic innovation concepts ("x-innovation" according to Gaglio et al. (2017)) results from a simultaneous process of appropriation and challenge to the technological innovation concept in defence of social values (idem), its low frequency in the policy documents might suggest that the technological innovation hegemonic concept has not been sharply questioned in the ST&I policy arena. Apparently, this process remains more circumscribed to academic contexts and environments.

However, despite this frequency analysis – useful for indicating the permeability of these alternative innovation concepts in political narratives –, we essentially need to understand how these concepts actually get deployed. Hence, the intentions of the following qualitative analysis, which provides the focus to the next section, involve identifying to what extent these terms are employed in the policy documents evoking social values.

3. COMPARATIVE ANALYSIS OF X-INNOVATION IN IBEROAMERICAN COUNTRIES

Making sense of trending discourses

As one might intuitively grasp, innovation has become a sort of panacea for all sorts of human endeavors. From aesthetics to economics, almost every human activity wants to appeal to some innovation buzzword. However, one type of innovation has led the way in our societies: 'technological innovation.'

This has been the case since at least the post-World War Two period, when innovation began to increasingly (spontaneously and implicitly) mean 'technological innovation.' However, in recent decades, as mentioned above, the concept of 'social innovation' has experienced a revival as well as the proliferation of alternative innovation concepts, such as sustainable, open, responsible innovation, among others – what Gaglio et al. (2017) call "X-Innovation."

This trend contains an implicit criticism towards technological innovation in perceiving this as somehow too narrow or too market-oriented even while there is the enduring appeal and recognition of innovation as the engine of this 'new economy' irrespective of the unintended consequences of technology and growing levels of inequality: "On the one hand, innovation is necessary in order to enable [underdeveloped] regions to catch up economically. On the other hand, innovations lead to further

redundancies and increasing disparities" (Guth 2005, p. 334). As expressed by Godin, "people contest a term (technological innovation) because of its hegemonic [economic] connotation. They coin alternative ones that often become a brand." (Forthcoming A, p. 205) This furthermore encapsulates the sense in which we consider all these alternative innovation concepts as counterhegemonic as they reveal contradictions and tensions in what has hitherto been virtually consensual – i.e., an ideological stance that considers only the benefits of growth, industries and technologies without contemplating the social and environmental problems deriving from modernization, progress or material development. (Williams 1977, pp. 115-116; Eagleton 1997, p. 107)

Some of the documents analyzed are quite remarkable now only in revealing the tensions and contradictions in those discourses but also how the traditional and more conservative views still predominate and correspondingly demonstrating how challenging insights are yet to be incorporated into the outlooks of national techno-bureaucracies. One example is the Portuguese strategic document entitled *A Commitment to Science for the Future of Portugal: Overcoming Scientific and Technological Delay*, which reports just a single occurrence of the word 'innovation' (in fact, 'entrepreneurial innovation') and also seems to adopt a rather linear and market-oriented perspective of investment in Science and Technology:

> "We know that the public resources invested under rigorous international evaluation are sources of new knowledge, of advanced training of new human resources for society and the economy, and of ideas and processes that, more and more rapidly, result in business innovation, modernization of institutions, quality of life, external competitiveness and better employment." (MCTES 2006, p. 4)

We furthermore encountered a similar tone in another Portuguese strategic document, more recent and produced under a more progressive government, entitled *Higher Education, Research and Innovation in Portugal: Perspectives for 2030* (MCTES 2018), with an abundant profusion of the word 'innovation' but without any reference to the 'social dimension' for innovation. Additionally, the neighbouring country, Spain, in its *Spanish Strategy for Science and Technology and Innovation (2013-2020)* fails to reveal

much in the way of 'x-innovation' conceptualization, preferring to stress that entrepreneurial leadership is the engine of innovation (MEyC 2012, p. 4). Still furthermore, and most astonishingly, the *Citizen Agenda for Science and Innovation* report, with textual analysis revealing not a single mention of any of the pro-social 'x-innovation' concepts. Those social dynamics ascribed to innovation, as one might expect from citizenship rhetoric, were only reference as regards 'entrepreneurial spirit' and the impact of 'innovations' on the everyday life of citizens. (FECYT 2011, p. 5)

Ambiguity, tensions and even contradictions, in addition to a significant gap between scholarly production and policy practitioners, thus encapsulate what we deal with in the subsections below in keeping with the different usages of the 'x-innovation' concepts identified over the analytical corpus of official policy documents.

Social and inclusive innovation

One concept gaining in momentum is that of 'social innovation' and applied in diverse areas and by differing actors, ranging from social movements to private management entities, entrepreneurship and public management while also creatively used by both practitioners and scholars. However, as regards its conceptualization, 'social innovation' indeed remains a troubled concept with several overlapping meanings invoking such diverse notions as institutional change, social purposes and the public good. (Pol & Ville 2009; Cajaiba-Santana 2013)

As studied by Godin (2010), over the twentieth century, "social invention was a counter-concept to that of technological invention" (Godin 2010, p. 25), although its meaning and its ultimate aim remained fuzzy. Representations of social innovations generally hold historical connotations with socialism and social reform but are indeed uncertain and have become increasingly dubious.

Initially, its meaning was linked with a subversive political project, even with a pejorative connotation, before gradually taking on a reformist ethos. Especially from the 19th century onwards, social innovation became defined as the search for "alternative solutions to social problems, particularly those of the 'marginals' … like the unemployed, the elderly, the poor…" (Fairweather *apud* Godin 2010, p. 23). Social innovation was 'innovation for the people' (Godin 2010, p. 17), innovation that should humanize capitalism and counter poverty.

Nowadays, however, social innovation encompasses different dimensions, from specific inventions and products to entrepreneurial strategies while passing through *adjustments* to market failures or societal problems. As with the general narratives of innovation, this provides a *catchword* whose outcome is change 'for the sake of change.' Naturally, theoretical efforts duly report these contradictions. From sociologists such as Gabriel Tarde to management theorists like Peter Drucker, including the likes of Thorstein Veblen or William Ogburn along the way, it is easy to find very different propositions for 'social innovation.' (e.g. Godin 2012, Howaldt et al. 2014)

This tension and polysemy are evident in the discursive analysis carried out. Of the eleven mentions to the term social innovation, six (i.e., over half) are not clearly and explicitly employed as having social values or societal purposes as their motives. For example, one reference to the term found in the *National Strategic Plan for Science, Technology and Innovation* (2010) of Uruguay terms social innovation as a "learning process that enables the development of effective methodologies" (GMI 2010, p. 22).

Another example arises from usage of the term in the *Innovative Argentina 2020: National Plan of Science, Technology and Innovation – Strategic Guidelines (2012-2015)* document that presents social innovation as a sector (along with agribusiness, information and communications technology, biotechnology, nanotechnology and energy) (MCTIP 2012, p. 25). The same document also repeats the term, again in a vague form, defining it as "a virtuous dynamic of interaction between the knowledge-generating

institutions and the potential beneficiaries of scientific and technological advances, that is, between the different actors involved in the process of social and productive innovation." (MCTIP 2012, p. 59)

Meanwhile, in the *Spanish Strategy for Science, Technology and Innovation (2013-2020)* document, the concept appears as the plan's objective described as the "*adaptation* [our italics] that technological change and innovation imply", "transversal to all the challenges of society", playing "a vital role in making available to citizens, businesses and administrations, new developments that mobilize the economy and digital society in this process of transformation." (MEyC 2012, p. 30)

Indeed, it has nowadays become very common to encounter references to 'social innovation,' "a term that almost everyone likes but nobody is quite sure just what it means" (Pol & Ville 2009, p. 881). However, the general 20th century trend was to present social innovation as a remedy or 'adjustment' to technology or technological innovation, which means that those discourses and theoretical efforts around social innovation "are a reaction to the dominant and hegemonic discourses on technological innovation." (Godin 2012, p. 9) Definitions may be presented based on this socially worthwhile and humanitarian bias as "social innovation came to mean alternatives to 'established' solutions to social problems or needs," especially via "government-supported social reform." (Godin 2012, p. 6)

However, according to some perspectives, companies represent the source of social innovation and, simply put, any businessman is a 'social innovator.' (Godin 2012, p. 20) This same logic uncritically presents states and governments as social innovators irrespective of their respective actual commitment to social reform. It is not its content that matters but rather the easy feat of presenting any societal actor as a societal benefactor with the impacts of their interests and activities uncritically presented as widely beneficial.

Peter Drucker provided an eloquent example of that meant by social innovation. A well-known management guru and prolific author, who extensively defined social innovation as business practices essentially for productivity. In his book *Innovation and Entrepreneurship: Practice and Principles* (1985), Drucker identifies two areas where our society allegedly needs substantial social innovation: in his words, i) "[t]he first is a policy to take care of redundant workers", by means of *displacing* them from their jobs; ii) "[t]he other social innovation needed is both more radical and more difficult and unprecedented: to organize the systematic abandonment of outworn social policies and obsolete public-service institutions." (Drucker 1985, p. 257-260)

The political project behind this conceptual understanding of social innovation is pretty clear:

> "These two social policies needed are, however, only examples. Underlying them is the need for a massive reorientation in policies and attitudes, and above all, in priorities. We need to encourage habits of flexibility, of continuous learning, and of acceptance of change as normal and as opportunity – for institutions as well as for individuals." (Drucker 1985, p. 260)

It then becomes understandable that a proportion of the literature distinguishes social innovation from business innovation with the latter's purpose "necessarily driven by profit". (Pol & Ville 2009, p. 881) However, others, mainly from within the management literature or biased by a narrow economist viewpoint, insist that all innovations are social and, strictly speaking, 'social innovation' is redundant. However, should one wish to take this concept seriously, social innovation must refer to "new ideas that resolve existing social, cultural, economic and environmental challenges for the benefit of people and planet". (Pol & Ville 2009, p. 880)

In order to arrive at a true meaning for 'social innovation', Pol & Ville put forward an interesting point: "A true social innovation is system-changing – it permanently alters the perceptions, behaviours and structures that previously gave rise to these challenges." (2009, p. 880) That would constitute the meaning of being 'counter-hegemonic' in the

sense of being able to alter the schemes of domination that generate extreme inequalities in society.

On the other hand, we have the concept of 'inclusive innovation' that emerges as an interesting and enlightening alternative to the concept of 'social innovation.' Although we may also identify different perspectives as regards inclusive innovation, it seems to be less polysemic than social innovation. Generally, inclusive innovation is defined as "the means by which new goods and services are developed for and/or by those who have been excluded from mainstream development; particularly the billions living on the lowest incomes". (Heeks et al., 2013, p. 1) This presupposes "a change in institutional culture and mandates the involvement of the poor in identifying their development priorities and in providing incentives for various actors to serve their needs more effectively." (World Bank 2010, p. 338) Regarding the system, "[t]he challenge here is to build inclusive and poverty-oriented innovation systems: 'inclusive' in terms of ensuring that the percentage of the workforce and enterprises involved in innovative activities increases; and 'poverty-oriented' in the sense that the technologies developed help to achieve the Millennium Development Goals." (Altenburg 2009, p. 39)

In sum, despite the distinctions, there prevails a social dimension in the different definitions produced by the Argentina, Colombia and Uruguay documents – although the occurrences are concentrated in the first: the Argentine documents return eleven of the fourteen total mentions. The *Innovative Argentina 2020: National Plan of Science, Technology, and Innovation – Strategic Guidelines (2012-2015)* defines inclusive innovation as "structuring actions aimed at guiding the creation and usage of scientific knowledge, technological production, and innovation aimed at social development." (MCTIP 2012, p. 60-61) Still, another section does put forward a more complete perception:

> "Development and usage of technologies aimed at the generation of products and production systems with inclusive socio-productive purposes tending to the satisfaction of rights and access to goods and services, participation in decision-making and distribution processes and the guarantee of accessing and exercising the right to decent work." (MCTIP 2012, p. 64)

Uruguay's *National Strategic Plan for Science, Technology and Innovation (2010)* defines 'inclusive innovation' in order to "develop capacities and opportunities for the social appropriation of knowledge and 'inclusive' innovation" while defending its potential for "generating more and better opportunities for the use and appropriation of technological change for people, with special emphasis on the most disadvantaged and excluded groups and sectors." (GMI 2010, p. 40) In the Colombian case, the term 'inclusive innovation' is even more clearly deployed as a (synonymous) alternative to 'social innovation.'[4] The Argentine case applies the following understanding:

> "(…) the S & T are tools for inclusive innovation throughout the country, responding to social development needs and improving the quality of life of the population (…)." (MCTIP 2012, p. 46)

In fact, for some authors and organizations (e.g. the OECD[5]), the question of 'quality of life' deserves presentation as a watershed in terms of social understanding. The 'micro' or 'macro' implications of innovation(s) for the quality of life, as expressed by Pol and Ville (2009), seem to be "an integral part of our definition of social innovation." (p. 882) [6]

Overall, the mentions of 'inclusive innovation', both in the documents analysed and in the literature, would seem to contain less polysemy in their understanding of this concept and therefore running counter to the situation we identified for the 'social innovation' concept.

[4] According to the Colombian Green Book. "In fact, despite the emergence of perspectives such as social innovation or inclusive innovation, the economic logic tends to be predominant." (COLCIENCIAS 2018, p. 20)

[5] An example is the OECD LEED Forum on Social Innovations for Economic Development and Local Job Creation that presents "Social innovation" as seeking new answers to social problems by "(…) [i]dentifying and delivering new services that improve the quality of life of individuals and communities", as well as by "[i]Identifying and implementing new labour market integration processes, new competencies, new jobs, and new forms of participation, as diverse elements that each contribute to improving the position of individuals in the workforce". Available at: http://wwwa.oecd.org/fr/cfe/leed/forum-social-innovations.htm [Accessed on 18 November 2018].

[6] Although there is no agreed definition of 'quality of life' and values such as happiness are not easy to define. Within this scope, however, some may agree that "*social innovation* can be slightly redefined as any new ideas with the potential to improve either the macro-quality of life or the quantity of life." (Pol and Ville 2009, p. 882)

From Open Innovation to Associative and Responsible Innovation

Some concepts, in their academic origins, emerge as less revolutionary than the intuitive understandings of them. Moreover, when considering the European rhetoric around 'open innovation,' for example, high expectations seem to be nurtured:

> "Overall, the acceleration of innovation has brought not only the economic benefits of better services and products but also the social benefit of cohesion in Europe, where citizens are able to shape the future of rapid change together. Indeed, the creation of a coherent vision and of a more coherent conversation on *open innovation* in the EU [European Union] has been key to navigate the challenges, and achieve the desired outcomes in productivity, growth and jobs, but also in social inclusion and sustainability." (EUROPEAN COMMISSION 2017, p. 49)

At the European level, this emerges as one of those cathartic concepts in which 'openness' becomes able to answer all hopes for transparency and participation.

> "Important steps in that direction have been taken in Horizon 2020 with the promotion of openness in EU R&I policy, including *openness* to the participation of a wide range of stakeholders in mutli-stakeholder configurations. Key in this is the recognition that scientific findings generated with taxpayer money are public goods and should be made public to increase social returns. Thus, *open innovation*, *open science* and *open data* must become the norm, and the right incentives and tools must be put in place to foster scientists and other actors to share their knowledge." (EUROPEAN COMMISSION 2017, p. 59)

Moreover, this openness is due to be complemented by 'Responsible Research and Innovation (RRI),' a key value to ensure that research and innovation are motivated by "social benefit," holding whether intergenerational, ethical, environmental, cultural or economic implications.

'Open Innovation' is presented in accordance with the virtuosity of its adjectivation, regarding collaboration, accountability, and regulation:

> "*Openness* can help the EU deal effectively with value conflicts that could have perilous consequences for science and for investment in innovation. As science and innovation become ever more pervasive, they also become subject to demands for regulation (…)." (EUROPEAN COMMISSION 2017, p. 60)

Responsible innovation also stresses those values of collective awareness. Stilgoe et al. (2013), for example, follows the Von Schomberg definition[7] of *Responsible Innovation*

[7] According to Von Schomberg, responsible innovation is: "A transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view to the (ethical) acceptability, sustainability and societal

but simultaneously claim its definition is broader: "Responsible innovation means taking care of the future through collective stewardship of science and innovation in the present." (Stilgoe et al. 2013, p. 1570)[8]

This need for transparency, accountability, and regulation may be related to recent trends, such as the *advent of digitalization and virtualization*, simultaneously a result and a cause of *the pace of innovation* in the last decades, responsible for "completely new models of research and innovation, associated for instance to notions like Science 2.0, enabled by big data techniques, digital platforms, and various forms of experimental and 'open' approaches to research and innovation (…)." (EUROPEAN COMMISSION 2017, pp. 59-60)

However, regarding the concept of 'open innovation,' this European reading seems much more comprehensive than that found in the Iberoamerican national plans. The internal understanding of this concept is indeed very limited as regards their possible extrapolations as described by the European documents. This tends to convey how the updated discourse ongoing in international forums does not encounter any similar parallel at the domestic level. For example, all seven identified references to the concept of 'open innovation' are far more closely aligned with an understanding common to the business management and administration perspectives.

Concepts such as 'open innovation' (as well as 'sustainable innovation,' as we shall see below) only recently entered the business environment and the scope of organizational business studies. It was Henry Chesbrough, an administration studies guru, who first presented 'open innovation' and in the following terms: "Open Innovation means that valuable ideas can come from inside or outside the company and can go to market

desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society." (Von Schomberg *apud* Stilgoe *et al.* 2013, p. 1570)

[8] According to Godin and Gaglio (Forthcoming, p. 8), "responsible innovation" is a fashionable concept in European policy circles, emergent in recent years, *more focused on institutional issues, a strong insistence on deliberation and procedural democracy, as well as ethical issues.* As expressed by the above-mentioned Horizon 2030 report, "RRI does not seek to dictate thematic priorities, but rather to help research providers and users to understand what is "responsible" and accordingly devise a responsive approach to research and innovation strategies." (EUROPEAN COMMISSION 2017, p. 60)

from inside or outside the company as well." (Chesbrough 2003, p. 43) Indeed, through this concept we do receive a new paradigm but strictly for corporate milieus dealing with R&D departments and striving to absorb good ideas from outside their walls while avoiding monopolies and intellectual property and patent rights. It is not by chance that Chesbrough acknowledges that "inevitably, the technologies will evolve to serve the needs of the dominant." (Chesbrough 2003, p. 194)

In a similar fashion, the usages we encountered very much resemble the same tone. The Brazilian report, for example, highlights "a highly collaborative innovation model promoted by so-called 'innovation intermediaries' and as an effective way of addressing the high complexity and cost inherent to software development" (MCTIC 2016, p. 54). Far more appropriately designed for the logics of corporate governance or public-private clusters involving "multiple internal and external agents, this incorporates new tools for the management of property rights and knowledge valorization and contemplates all the intangible dimensions of the process" (MEyC 2012, p. 34), as also duly identified by the Spanish strategy for the 2013-2020 period.

However, a sort of appropriation of the 'open innovation' concept seems to occur with the 'associative innovation' concept as exemplified in *Innovative Argentina 2020*. This document formulates a policy instrument for strengthening and expanding innovation with reference attributed to consolidating "the trend developed in recent years towards associative or network innovation, endowing it with a growing systematicity and consistency and deepening the interaction between the different implementing institutions." (MCTIP 2012, p. 58) In this sense, 'open innovation' is extrapolated as some kind of 'associative networking' ongoing among institutions.

Another concept interpreted in terms of its institutional impact is that of 'responsible innovation.' In particular, in the case of a Brazilian document, the authorities seem to point to a regulatory framework: "Regulatory research and the interactions of these research groups with regulatory agencies, industry, and legislators form the

framework for responsible innovation, and this is one of the global trends identified by the OECD for ST&I." (MCTIC, 2016, p. 51). That is, "responsible" serves to point in the direction of a regulatory apparatus coupled with intellectual property management.

In sum, some of these new concepts run contrary to intuition; that the social dimension ends up being limited whether to the market sphere or the corporate milieu. In those cases, the business model and the profit motive still prevail and with some new accounts thriving by retooling an understanding of the 'social dimension' clearly within the entrepreneurial innovation narrative and hence in keeping with the Schumpeterian tradition.

Sustainable and ecological innovation

Finally, a concept such as 'sustainable innovation' seems to have been particularly overlooked by the public authorities. After all, despite dubious interpretations of its meaning in some stances, policy discourses seem to constantly avoid the implied 'moral narrative'. As the literature details:

> "(…) sustainable innovation questions the economy and the market ideology by focusing on sustainability rather economic growth. In so doing, it provides morality to innovation – once again – and contributes to the enlargement of the concept of innovation to dimensions (social, environmental) that are said to ensure sustainability." (Godin & Gaglio, Forthcoming, p. 9)

On the other hand, the fact nevertheless remains that 'sustainable innovation' is also now treated as just another way of looking at 'business models' (Boons & Lüdeke-Freund 2013). Another related concept, 'eco-innovation,' also gets proposed clearly within the capitalism worldview and certainly within an entrepreneurial management perspective: as Carrillo-Hermosilla et al. (2009) described in their seminal book on 'eco-innovation' with its most illustrative caption being *When Sustainability and Competitiveness Shake Hands*.

Sustainability however draws on far deeper roots than these recent discourses. The term 'sustainability' was first used in German forestry circles by Hans Carl von Carlowitz (1645-1714). (Pisani 2006) However, especially from the 1960s and 1970s onwards, the awareness of international organizations as regards ecological challenges founded the basis for the Stockholm Summit in 1972, a United Nations Conference 'on the Human Environment'. Along the way, the concept of sustainability fell within the scope of the debates shaping initiatives such as the Rome Club (1968) or *The Limits to Growth* (Meadows et al. 1972) report. Furthermore, the common *definition of sustainability* stems from the Brundtland Report of 1987[9], which set out 'sustainable development' as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (WCED 1987, p. 43)

It is important to note that of the eight countries analyzed, only Argentina elaborates on the concept of 'sustainable innovation.' Even though, despite being provided three times, it is the same definition repeated on every occasion the document explicitly mentions its policy objectives. In other words, the term appears only once inside the analyzed corpus, arising in the following terms:

> "To promote inclusive and sustainable productive innovation based on the expansion, advancement and full exploitation of national scientific and technological capacities, thus increasing the competitiveness of the economy, improving the quality of life of the population, within a framework of sustainable development." (MCTIP 2012, p. 38)

We would duly note there is only a general reference to 'sustainable development' without any explicit environmental considerations. This represents an interesting example of the creativity common in policy formulation, as we have been analysing above, wrapping several contradictions in just a single definition.

[9] Formerly known as the World Commission on Environment and Development (WCED), the mission of the Brundtland Commission was to unite countries to jointly pursue sustainable development. The Chairperson of the Commission was Gro Harlem Brundtland, a Norwegian politician and former Prime Minister of Norway (1981, 1986-89, and 1990-96), as well as Director-General of the World Health Organization from 1998 to 2003. The Brundtland Report was entitled Our Common Future and was published by Oxford University Press.

In another national case, however, the concept of 'environmental innovation' – as rendered by the *Colombian Green Book 2030* – appears in its full meaning:

> "This is how policy initiatives focused on environmentally and socially sustainable innovation strengthen, for example, the promotion and development of clean technologies, inclusive innovations, and social innovation. In this way, the policy began to broaden its understanding of the STI, including civil society and citizens, not only as consumers of knowledge and innovations but also as promoters and generators of them to address social and environmental needs." (COLCIENCIAS 2018, p. 22)

It should be noted that environmental issues are here associated with social issues, including the problems around the innovation inclusiveness deficit in our societies.

Regarding the so-called 'ecological innovation' – another derivative of 'sustainable innovation' –, Carrillo-Hermosilla et al. (2010) put together several definitions for eco-innovation – and sustainable innovation, concepts drawing on the same semantic field. (Godin & Gaglio, Forthcoming) Those definitions are, of course, naturally quite general as they intend to cover the ways in which human societies may potentially harm the environment. However, above all, these definitions appear as rather mutually diverse.

From *eco-innovation* being "any form of innovation aiming at significant and demonstrable progress towards the goal of sustainable development, through reducing impacts on the environment or achieving a more efficient and responsible use of natural resources, including energy" to *sustainable innovation* presented "as a process where sustainability considerations (environmental, social, financial) are integrated into company systems from idea generation through to research and development (R&D) and commercialization." (Carrillo-Hermosilla et al. 2010, p. 3) There are indeed definitions that are less environmentally motivated and more economically sustained in terms of the business model durability and soundness and correspondingly taking into consideration the old cost-benefit analysis of products, services, and technologies as well as lucrative opportunities for new business and organization models. As Godin and Gaglio explain:

> "(...) It may seem odd at first glance, but sustainable innovation also has a business sense that ignores environmental sustainability. Sustainable

> innovation in this sense is a lasting innovation in a competitive economy that allows a company to make ongoing profits: innovations must be introduced into a rapidly-evolving economy (…)" (Godin and Gaglio, Forthcoming, p. 6)

This business profit-oriented sense has also duly been observed by other authors (Golovatchev et al. 2010) and is present in the other concepts hereby considered, such as 'open innovation' or even 'social innovation.' The former environmental meaning and the later business meaning reflect how, "like innovation, sustainable innovation is a sustainable concept: it travels easily among scholars and between scholars and officials; it changes meaning according to use; and it is eminently performative…" (Godin and Gaglio Forthcoming, p. 1) As these authors point out, "Sustainable innovation, like innovation as a general concept, is polysemic" (Idem, p. 7), which is an essential facet to understanding the diversity of discourses and conceptual nuances over the documentation support to analysis in this study.

CONCLUDING REMARKS

Following our analysis, we may summarize the findings by pointing out that, while there are indeed references to the potential of innovation for both economic and social purposes, the lower adhesion of official documents to the contents of academic production involving these counterhegemonic or alternative innovation concepts still remains clearly evident. There is little consonance between the academic production and the conceptualization present in the official documents, which may result from one of two explanations: either the techno-bureaucratic apparatuses are poorly attentive (updated) as regards the production of knowledge, or the recent outputs produced under the auspices of 'x-innovation' concepts have failed to persuade policy-makers.

Even following the guidelines of the research method employed (Content Analysis), we recognize that our data interpretation was subjective to some extent. In any case, national policy plans account for just one (among many) types of policy documents. Future studies should incorporate other sources of policy discourse. Furthermore, it

would be interesting to examine to what extent these national policies reflect symbolic only policies. Nevertheless, we believe these limitations do not invalidate our findings as these policy documents are expressive as regards the political narratives ongoing in the ST&I field.

This would seem to demonstrate that the prevailing view among policymakers does not perceive any need to consider other kinds of innovation for social purposes other than technological change, which may result from some dissonance (or a temporal mismatch) between academic production and official documents. Our analysis of policy documents ('explicit policy') demonstrates that the presence of these concepts is both rare and insipient – despite their widespread application in academic discourses and papers.

This furthermore seems to indicate that the expansion of these discourses has not yet had any significant impact (at least not evident) on the dominant interpretation of innovation prevailing in the discursive space of Science, Technology, and Innovation policy in this geographic region. At most, what we here identify amounts to a change in the narrative as regards the extent of the benefits of technological innovation – i.e., innovation as a technology providing new products or optimizing processes. General acknowledgement that the impacts generated would reach far beyond economic progress (such as growth, exports and competitiveness) is not unusual, which are in any case already classically claimed by the Schumpeterian tradition; and also incorporating open innovation, sustainable development, etcetera and even social innovation into policy discourse, does not mean establishing any new practices or aims.

The old saying of 'new labels, old bottles' would therefore seem to make sense: "Today the concept of innovation takes various specific forms, many of them as a contestation of the technological view: social innovation, common innovation, responsible innovation, inclusive innovation, etcetera. Yet many of these new forms have the same function as technological innovation." (Godin & Gaglio, Forthcoming, p. 4) This

is an important point in revealing how idiosyncratic such discourses are, immersed in tensions and contradictions.

Our purpose here was to contest neither the relevance of the original narratives nor even the efforts applied by the techno-bureaucracies in updating their policy argumentation. In fact, there are nevertheless still several clues for further research. For example, at least three more variables might add insights to this discussion: a) the political orientation of governments within the framework of which conservative governments have often placed more emphasis on the traditional vision of innovation while progressives have been more open to revamping such discourses; b) in relation to the former, the participation of academic communities in the design and discourse of policies (which are also more present in certain types of governments than in others); c) the degree of national development and its commitments to international organizations (the influences of the European Union, OECD, IDB, World Bank, etc.) in the formulations of STI policy. Additionally, this might explore whether or not there is any correlation with the proportion of the population facing poverty or exclusion in the countries considered. There is, in sum, several contextual variables that might generate explanations for the differences between countries and their different policy generation processes.

However, we would nevertheless emphasise that this transversal analysis does demonstrate how the deployment of alternative concepts or theories of innovation have not yet reached beyond rhetoric and the means of obtaining the social make recourse to the same old deterministic (and market) value of technology without effectively considering the social determinants behind the problems that technology seeks to solve. Hence, one must be aware that understanding social innovation as some kind of 'adjustment' to technological invention may not be either for the sake of social reform or for the aim of producing social inventions but might instead strive to return sustainable profits for specific social agents. This does indeed reflect the quite remarkable difference between innovations for fostering the needs of individualistic and artificial consumption

or, quite differently, innovations for addressing the societal problem-solving issues of development and equity.

Therefore, it seems clear that a critical awareness of conceptual derivation is central to understanding the recent uses (and abuses) of several 'x-innovation' concepts. As detailed above, many of these concepts are clearly marked by fuzzy definitions and ambiguities. Once more, there is the need for a more rigorous and critical vision. Otherwise, one should remain sceptical just like the economist Fritz Machlup several decades ago: "A term which has so many meanings that we never know what its users are talking about should be either dropped from the vocabulary of the scholar or 'purified' of confusing notations." (Machlup 1974 [1963], p. 43 *apud* Pol & Ville 2009, p. 880)

As regards this looseness, one must inquire whether those concepts are really helping the cause of social reform. Alternatively, one might also even ask whether innovation (or at least its rhetoric) is also actually helping us to resolve our problems. An interesting warning comes in a footnote of Horizon 2030 that states: "An implicit risk is that of research and innovation making too high promises for the short- to medium-term, which, if not fulfilled, would erode the credibility and confidence of people in science, research and innovation." (EUROPEAN COMMISSION 2017, p. 54) This is a risk that cannot be disregarded.

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