

## National Development Plans and Market Process: A revision from Law & Economics, IA, and the Public Issues perspectives\*

Planes nacionales de desarrollo y procesos de mercado: una revisión desde la perspectiva del derecho y economía, la IA y los problemas públicos

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### Abstract:

This journal article theoretically examines the thesis of whether a government organization envisaged to, directly and indirectly, regulate the “market process” manages to fulfill its “macro functions” from a “long-run performance” perspective. Also, the proposed exercise is characterized as a public issue and therefore, for its analysis, a hypothetical-deductive exercise and formulation of conjectures is proposed in the sense of Noveck —2022—. That is, in addition to the implementation of ideas from the economic psychology of Richard Thaler —1986—, an analysis matrix is created to explore whether the actions of an entity such as the Superintendence of Industry and Commerce of Colombia (SIC), randomly selected as an example, can contribute to the “market process” by automating the implementation of its strategic plan through the introduction and/or deepening of the use of artificial intelligence (AI) and other advanced analysis tools that add value.

**Keywords:** market process, efficiency, effectiveness, public problems, rules of the game, artificial intelligence.

### Resumen:

Este artículo examina teóricamente la tesis de si una entidad del Estado concebida para regular directa e indirectamente al “proceso de mercado”, consigue cumplir sus “macrofunciones” desde una perspectiva de “*long-run performance*”. Además, el ejercicio propuesto es caracterizado a modo de problema de política pública y, por consiguiente, para su análisis se propone un ejercicio hipotético-deductivo y de formulación de conjeturas en el sentido de Noveck —2022—. Es decir, además de la implementación de ideas provenientes de la psicología económica de Richard Thaler —1986—, se elabora una matriz de análisis construida para explorar si la actuación de una entidad, como la Superintendencia de Industria y Comercio de Colombia (SIC), seleccionada aleatoriamente, a manera de ejemplo, puede coadyuvar el “proceso de mercado” automatizando la implementación de su plan estratégico a través de la introducción y/o profundización en el uso de inteligencia artificial (IA) y otras herramientas de análisis avanzado que aporten valor.

**Palabras clave:** proceso de mercado, eficiencia, efectividad, problemas públicos, reglas de juego, inteligencia artificial.

## Introduction

The general objective of this article is to examine retrospectively and through a hypothetical-deductive exercise and the formulation of conjectures in the sense of Noveck<sup>1</sup>, the thesis of whether the Superintendence of Industry and Commerce (SIC) manages to fulfill its macro functions in favor of the market process (*long-run performance*) and whether this scenario, qualitatively characterized as a public issue, could be helped by automating the implementation of its strategic plan through the introduction and/or deepening of the use of artificial intelligence (AI) and other advanced analysis tools that add value.

This approach is important not only for the Colombian jurisdiction but also for other Latin American jurisdictions such as Chile, Ecuador, and Peru, if we consider that the actions of this entity attached to the Ministry of Commerce, Industry and Tourism (MINCIT) are aimed at “ensuring the proper functioning of markets through the surveillance and protection of free economic competition, consumer

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rights and industrial property”<sup>2</sup>, and that can be emulated by having established guidelines for collaboration, cooperation, and network operation as proposed through the Latin American Integration Association (ALADI), the Working Group on Trade and Competition in Latin America and the Caribbean, the General Secretariat of the United Nations Conference on Trade and Development (UNCTAD) and other spaces.

In this order of ideas, we anticipate that in this contribution we will distance ourselves from other scientific contributions written in a classical sense, that is, from the administrative doctrine, such as the proposal of Torrado Ramírez & Meza Hernández<sup>3</sup>, and focused on aspects that can be characterized as micro functions and that respond to the needs and “temporary” criteria of the exercise of an administrative function of a state entity, such as supervision, monitoring and control (*short-term performance*).

A theoretical-descriptive methodology is then proposed, which presupposes the documentary review of specialized literature (legal and economic doctrine). In other words, a qualitative proposal will be shared. In this way, the vertex of our contribution is directly connected to the three specific objectives that we will seek to achieve: (a) *Identify* the guidelines (strategic or action plan) that support the goals of the Superintendence of Industry and Commerce; (b) *Conceptualize* certain theoretical criteria<sup>4</sup> derived from the “modern” Law & Economics and heterodox “right” and “left” thinking, without falling into a Kuhnian crossroads or an exercise of deconstruction in the style of *Critical Legal Studies* of Anglo-Saxon inspiration (Kennedy et al.), that allows us to assume a critical position and—in the future— propose an adjustment proposal that materializes through a redesign of public policy and/or organizational management of the entity in question, and (c) *Assess* (theoretically) whether the SIC would contribute to the fulfillment of its macro functions and institutional strategic objectives as indicated in the “National Development Plan 2018-2022 Pact for Colombia. Pact for Equity” if it were to automate its processes and actions through the introduction and/or deepening of the use of artificial intelligence (AI) and other advanced analysis tools that add value.

## Guidelines of the SIC’s Strategic or Action Plan (2019-2022)

A review of the website of the Superintendence of Industry and Commerce (SIC) links its work to the National Development Plan 2018-2022 *Pact for Colombia. Pact for Equity*<sup>5</sup>. Through this strategic plan, the Colombian government has sought to “respond to the challenges set by the Government and the needs of its citizens”<sup>6</sup>. Likewise, this roadmap

constitutes a tool that guides the fulfillment of the sector’s strategic objectives and contributes to achieving the vision of each of the entities that comprise it, through the implementation of the proposed initiatives and the monitoring of their progress and fulfillment.<sup>7,8</sup>

## National Development Plan 2018-2022 “Pact for Colombia. Pact for Equity”

Taking the PND 1018-2022 —MINCIT, 2019— as a compass, it is possible to question whether the results of the SIC have been satisfactory and, therefore, to infer whether this entity necessarily fulfills and/or does not adequately fulfill its macro functions (which should perhaps be changed to institutional goals and/or reformulated as guiding principles or rules). Certainly, although not all the responsibility for the structural weaknesses of the Colombian market process<sup>9</sup> can be shifted to an attached administrative entity, it is possible to argue that its impact and performance are subject to criticism and the need to note that all public and private activity involves the development of an exercise of *continuous improvement* (as understood by Montes and Moreno<sup>10</sup>), through which it cannot be taken for granted - per se - that the core entity to promote and/or influence a key factor or element within society, such as the provision of goods and services under open

and/or restricted competition, has performed outstandingly. In that order of ideas, some questions derived from the PND 1018-2022 will arise, the instrument that states that

a constant stagnation of the country's productivity during the last decade was detected, as well as an increase in illegal economies, high labor and business informality, and tax and regulatory costs that put a brake on entrepreneurial activity, which is why it outlined a route to eliminate barriers and create conditions that accelerate economic growth and equity in access to opportunities.<sup>11</sup>

Faced with this scenario, among the many concerns are: What is the degree of responsibility that corresponds, in the Colombian case, to the SIC? In a context of high political fragmentation, can the SIC be expected to have a relevant impact on its macro functions? Using general measurement parameters and not specialized and/or focused indicators, does the SIC have an impact on its macro functions? If we transfer these questions to other jurisdictions (Chile, Ecuador, and Peru), how should they be formulated?

We believe that *prima facie*, the answer is negative, if we derive that, in synthesis, the objective of the NDP -extensive to all administrative entities of the sector- consists of:

The fact that “achieving social and productive inclusion through entrepreneurship and legality” has **not** been achieved to date and that **no** ostensible improvements have been made, which has forced us to maintain this consideration as a present and/or pending need to be covered, opens the door to maintaining an attitude of doubt or —at least— suspicion.<sup>12</sup>

## **Costs and Benefits. Limits for a static system that must solve and respond to the needs of a dynamic system (complexity)**

In the work of Professor Alberto Ruiz Ojeda<sup>13</sup> of the University of Malaga, entitled “Regulation and Competition in Services of General Economic Interest” (2015), the administrative entities of the State are discussed as “entrepreneurs or *homo agens*”, that is, as *explicit market* agents capable of identifying new profit opportunities. Certainly, this reasoning inspired some heterodox “conservative”, and “pro-market” scholars must reflect on entrepreneurship and markets may be controversial. However, if we perform a brief abstraction exercise, it will be possible to formulate the following postulate: (i) The provision of services as an “administrative authority” to society and its members constitutes a scenario that must be understood from the dynamic system and complexity. (ii) This limits the postulation of an analysis that has its theoretical matrix in the *rational choice* to address problems of complexity. In other words, an entity cannot aspire to fulfill its macro functions if these arise from complexity and its proposals are still halfway there by having been rooted and built on the support of the static.

This statement makes more sense if we assume that the six (6) strategic objectives formulated by the Colombian State are ways of proposing “dynamic scenarios”. Moreover, the transversal axis of “equity” constitutes —with certainty— a multidimensional and highly complex element and, in short, it cannot be expected to be achieved with formulations that are born from the static. In this order of things and without confusing correlates, we can maintain that: (1) the *Competitive Environment* that seeks to create enabling conditions to achieve “business growth” constitutes —still— a first pending task. (2) *Productivity and Innovation* to “increase the productivity of companies and generate economic growth and development” follows the same path as well as (3) *Investment* through which it has been pursued to attract high-impact investment for the country. The (4) *Entrepreneurship* oriented to establish the pillars of *Formalization* and scalability is an issue that still needs to be addressed by an economy that is moving in the opposite direction. The (5) *New Sources of Growth* with “disruptive growth in sectors with significant impact on GDP and employment” and (6) *Institutional Strengthening* to “improve sectoral performance, strengthening innovative thinking, commitment, and growth of human capital, in the search for results that contribute to the transformation of the country and promote inclusive and sustainable economic and business development”

should also be understood as indicators that endorse that the SIC has not achieved compliance with institutional objectives and macro functions that is little or nothing debatable, even if a theoretical and critical characterization such as the one shared here is implemented.

This narrative acquires greater impact if we resort to the following graphic formulation (Figure 1) —taken from ideas openly discussed by academia thanks to heterodox authors such as Hayek and Boettke or others and, in the Ibero-American milieu, by Professors Roldan Xopa and Zavala<sup>14</sup> and formalized also by them and very recently in a conference on the analysis of complexity (algorithmic and computational), the behavioral and the limits to rational choice by introducing as a scale the “Occam’s Razor Principle”, which urges us to simplify the complex to the extent that this is feasible for the understanding of “change” in its various forms of manifestation<sup>15</sup>.

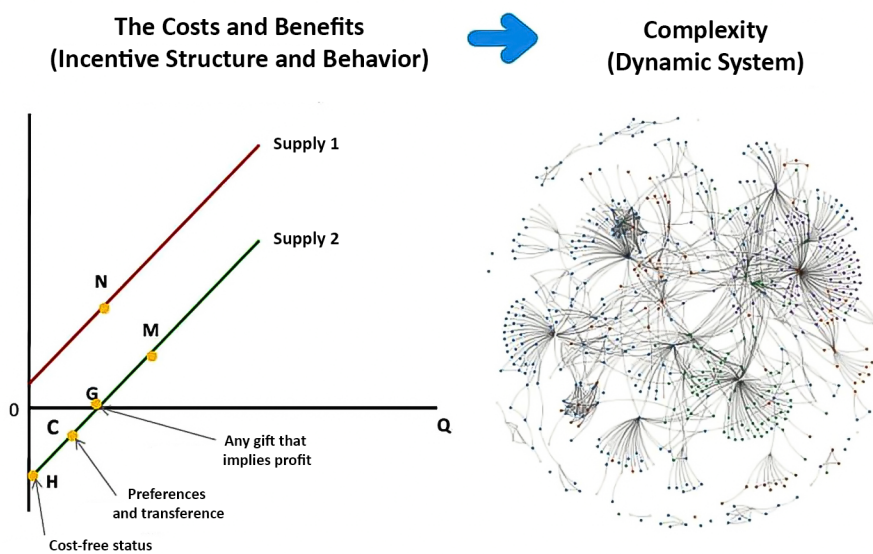


FIGURE 1.  
The Costs and Benefits (Structure of Incentives and Behavior)  
Source: Own work.

Continuing with the line of argument spread by Sammut-Bonnici<sup>16</sup>, it is argued that analyzing complexity facilitates the understanding of how systems or organicities such as the market process, companies, and states grow, adapt, and evolve. This becomes more important if as social scientists we seek to explain “how” the relationships between the different components and/or members of these systems originate a “common” (collective) behavior interacting in turn with their environment (environment) from a modeling that is not based on the anthropocentric or geocentric but transcends these straitjackets.

## Considerations from the point of view of addressing public issues at the theoretical level but not yet solved

If we contextualize the problem posed from a public problem-solving approach, defined as a collective situation that implies “social” dissatisfaction and requires a solution through collective state action and is expressed through mechanisms of economic intervention (direct and indirect regulation), we can argue that an entity that acts as a regulatory, supervisory and/or (competition) agency must always formulate its policies without losing the north of “social innovation”. Following Noveck<sup>17</sup>, a series of skills are required that make

it viable for entities to stay on that course. The following is a summary of the “set” of skills identified by the NYU professor:

**a. Ability to define problems:** This means that the entities that have the responsibility to intervene in the “market process” must have the capacity to define the level of urgency of the public issues to be addressed and this approach must be facilitated by a policy document or action plans that are —continually— revised.

**b. Data analysis for the rapid review of evidence, generation of proposals, and measurement of what works:** Entities must have units specialized in data analysis for making intelligent (evidence-based) and rational decisions in the sense proposed by Arrow<sup>18</sup>. These units should not simply be circumscribed to a single area or section, but it is necessary to consider that each area or division should have this strength, which will allow it to gain functional autonomy and dynamize its response and action capacity, among others. In addition, this type of unit should be established by incorporating the use of new technologies that resort, for example, to artificial intelligence, to the extent that this is correctly managed, contributes widely to the extraction and processing of information and data, and to mitigate the *perverse effect* derived from the deviations of the presence of *cognitive biases* and *ideological biases* that affect a complex process of strategic decision making<sup>19-20</sup>.

**c. Service and performance design focused on the people being served and the establishment of teams and alliances for the implementation of change:** This involves working jointly and permanently with the people or subjects of rights whom we are trying to help proactively, i.e., deepening the understanding of problems (needs) through direct and/or indirect consultation.

**d. Group, associative, and collective intelligence:** Consider the collective intelligence of groups (communities) by adopting a participatory model. Open and democratic.

The above should be materialized through iterative planning and this as proposed by Noveck<sup>21</sup> can be outlined through a problem-solving matrix such as the one we propose below:

TABLE 1.  
Public problem-solving matrix<sup>22</sup>

Identify the Issue	Identify Solutions	Design Implementation	Evaluation and Evolution
<p><b>What is the issue?</b></p> <p>The question is closely related to the “necessity” factor. To that extent, the performance of the entity, although it may imply strict compliance with its organic functional mechanisms, has not had a decisive impact through its role of assisting the Market Process in Colombia, because it can be argued that its impact has not led to substantial improvements in terms of <i>long-run economic performance</i>.</p>	<p><b>Who can design solutions?</b></p> <p>From a scenario of “open-social-innovation”, it is necessary to identify those who can contribute concrete solutions, relevant and timely.</p>	<p><b>How would a solution work?</b></p> <p>This involves an experimental exercise for which artificial intelligence can be very useful.</p>	<p><b>What experiments can I perform? Insofar as we are dealing with experimental spaces, is it relevant to resort to artificial intelligence?</b></p> <p>One way to overcome a context of “prior guesswork” is through the introduction of scientific tools. Artificial intelligence in a laboratory may be extremely important. The <i>quid</i> and the <i>quod</i> of the analysis proposed in this article aim at adding social innovation to overcome public issues.</p>

<p><b>What are the causes?</b></p> <p>Preliminarily, it can be argued that the “causes” can be divided into a) causes inherent to the performance of the entity in its different areas of action and are related to the deficiencies of its short-term policies and/or deficiencies attributable to its performance and/or legal framework; and b) causes inherent to structural factors of the Colombian market.</p>	<p><b>How can I address the issue(s) identified?</b></p> <p>This involves the generation of ideas and/or working hypotheses focused on generating new processes and/or their optimization in terms of measurable results for the measurement of management performance.</p>	<p><b>What is the theory of change?</b></p> <p>A “theory of change” must be advanced, i.e., a series of conjectures about how and why a new virtuous cycle of transformation can be generated in an entity and thus the impact of the “social capital” in the functioning of the market.</p>	<p><b>What are the most timely and relevant data (metrics)?</b></p> <p>Artificial intelligence may be the right tool to “clean up” the bias in our analysis and provide a way to identify the relevant data.</p>
<p><b>Who is affected?</b></p> <p>This affects citizenship in a global sense, i.e., holders of rights and obligations.</p> <p>However, answering this question also requires including collective “persons” or others with an organic structure that differs from individuals.</p>	<p><b>How can I identify what other factors are involved so that a synthesis of the available evidence can be achieved?</b></p> <p>One way to do this is through a new study of the evolution of compliance and systematization of public processes. Also, consider the use of artificial intelligence for the effective improvement of processes and their optimization in terms of results.</p>	<p><b>With whom can or should alliances be generated?</b></p> <p>Once the weaknesses have been identified, potential “partners” must be nominated, potentially from the international cooperation.</p>	<p><b>How to promote the adoption of a solution and who can evaluate what works and what requires reformulation?</b></p> <p>This area involves making a political decision, promoted through marketing strategies but supervised through a “social audit”. The purpose is to mitigate the effect of ideological bias on state action.</p>

<p><b>What data is available?</b></p> <p>We refer to quantitative data that must be reviewed in detail to perform a retrospective analysis that allows us to compare two scenarios. The first instance of actual performance and the second from the entity's impact. This involves generating a comparison with the hypothetical case of what would have happened in the market if the entity did not exist.</p>	<p><b>Who can collaborate and/or oppose change?</b></p> <p>Here, it is important to identify the key players in the social engineering exercise.</p>	<p><b>What are the roles?</b></p> <p>An exercise such as the one proposed requires the implementation of the division of labor principle. This implies being able to propose roles considering strengths and weaknesses.</p>	
		<p><b>Why is it timely to generate change?</b></p> <p>It must be justified according to the degree of timeliness (temporal) and relevance of the social change being pursued.</p>	



		<p><b>What is the cost structure and what resources are needed?</b></p> <p>This requires going beyond a simple “social accounting” exercise and implies integrating tools and approaches to correctly identify the “social cost” of the “social benefit” pursued. Likewise, assuming the implications of the “mental accounting” of citizenship as suggested by Thaler to prevent collective rejection<sup>2</sup> and/or avoid incurring in a scenario where the statistical principle called “Law of Large Numbers” is misinterpreted.</p>	
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<sup>2</sup> R. H. Aaler, *Everything I've learned with economic psychology* 186 (Editorial Planeta, 2016).  
 Source: Own elaboration.

## National Development Plan and Artificial Intelligence

Artificial Intelligence tools contribute to the extraction and processing of information and data. These actions make it possible to avoid and/or parameterize the deviations inherent to the presence of *cognitive biases* and *ideological biases* that affect a complex process of strategic decision-making in government<sup>23,24</sup>. This affects the feasibility, for example, of “programming” respect for the rule of law (understood and defined as the effective limitation of political power) as a standard.

Furthermore, it would facilitate the implementation of a national plan that responds to *State Policies* (medium and long term) or macro functions in favor of the market process (long-run performance) and not only to *Government Policies*<sup>25</sup> or to “criteria” that may be transitory, but such also as the reasons behind the political motivations that affect the exercise of an administrative function of a state entity (*short-term performance*).

However, can “machines” fully automate the formulation, validation, and implementation of a national strategic plan? The preliminary answer is no, although there are many areas where AI (advanced analytics) tools bring great value.

On the other hand, let us remember that the use of AI responds to phases and/or stages. These phases and/or stages can be mainly three (3)<sup>26</sup>:

- a) Descriptive phase and/or stage.
- b) Retrospective-diagnostic phase and/or stage.
- c) Predictive phase and/or stage.

In the first, a (Colombian) state entity such as the Superintendence of Industry and Commerce (SIC) can use AI to collect and represent information through interactive dashboards that allow graphically contextualizing the performance of its various components based on certain descriptive parameters (national plan-objectives and goals in the context of a continuous improvement system).

In the second, the SIC can emphasize a retrospective analysis, designed to generate a diagnosis, and understand the main causes affecting the performance of its various components.

Finally, we can speak of predictability, which involves AI being used to enhance the capacity of the CIS to anticipate scenarios or alternatives (courses of action) and to “think” systematically in the face of adversity or the need for radical changes (“revolutions”) and/or gradual and staggered changes (“reforms”).

## Conclusions

In the first section, we presented an outline showing our doubts as to whether the SIC contributes to the fulfillment of its institutional macro functions in favor of the market process. From this perspective, the SIC would not contribute to the fulfillment of its macro functions to the extent that no convincing results have been achieved and, to date, the MINCIT supervisor maintains as an objective (without adapting its formulation to a goal or reformulating it to a principle and/or framework rule)

*to promote* the productive transformation to reduce dependence on hydrocarbons and mining-extractive products, increase labor and business formalization through trade facilitation, a greater use of the opportunities offered by free trade agreements and boosting the insertion and connection to the markets of the vulnerable and rural population.

Therefore, at the end of our analysis and of a —still limited— hypothetical-deductive exercise, it is argued that the macro and complex needs of MINCIT and the Colombian society have not been sufficiently addressed by micro actions inspired by a static and rational choice analysis such as the one carried out by the SIC. In a nutshell, the to rethink the actions of an entity within a new historical period<sup>27</sup> a lot more than political pacts, discursive solutions, and —apparent— compromise solutions are needed.

Likewise, an exercise was proposed from a public problem-solving approach to argue that an entity acting as a regulatory, supervisory, and/or competition agency should always formulate its policies without losing the “social innovation” approach. To that end, a summary of the main “skills” that make it viable for state entities to stay on this course was presented, emulating developments such as Noveck’s<sup>28</sup>.

Finally, the question of whether the SIC contributes to the fulfillment of its institutional macro functions and strategic objectives, as indicated in the “National Development Plan 2018-2022 Pact for Colombia. Pact for Equity”, by automating its processes and actions through the introduction and/or deepening in the use of AI and other advanced analysis tools that add value, the answer is still negative. However, this paper outlines the main phases and/or stages through which its use can be proposed.

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## Notes

- \* Artículo de investigación/Research article.
- 1 Beth Simone Noveck, *How to solve public problems. A practical guide to fixing the government and changing the world* 113 (Galaxia Gutenberg, 2022).
  - 2 MINCIT, *Strategic Planning 2019-2022*, 4 (2019).
  - 3 María Lourdes Torrado Ramírez & Nelson Meza Hernández, *Analysis of the administrative and jurisdictional functions of the Superintendence of Industry and Commerce in matters of free competition*, (41) *Revista Derecho del Estado* 317-350 (2018).
  - 4 This idea brings up the mainline economic reasoning used for the understanding of complex abstraction processes, as expressed by George Mason University professor Boettke: “[People see models as tools of economic reasoning, not the subject of economics”. Peter Boettke, *Living Economics, Yesterday, Today and Tomorrow* 31 (The Independent Institute, 2012).

- 5 For this article, the above-mentioned plan has been taken as a representative sample, but not without first making a retrospective comparison with instruments of the same caliber proposed by previous governments for the Colombian jurisdiction. It should also be noted that to date there is no updated and current plan.
- 6 MINCIT, *supra* note 2, at. 7-8.
- 7 *Id.*, at. 8-9.
- 8 This assessment should be studied and nuanced by delimiting the difference between complicated (Administrative Entities/Government Policies/Short-term *performance* in economic competition or other examples) and complex (State/State Policies/Long-run *performance* in economic competition or other examples) systems as proposed by Sammut-Bonnici —2015—. While complicated as the administrative entities of the State require attention to detail, complexity (the State itself as an expression of *collective* and *collectivizing action*) requires attention to the behavior of the whole system. States move from a complicated way of managing “day-to-day affairs” (for which their administrative entities and government policies are relevant) to a more complex way of functioning that certainly evolves and must be adapted in terms of its internal divisions and its environment (which alludes to the formulation, evaluation, and implementation of State policies). In this order of things, complexity theory is useful and even gravitating to recognize that social phenomena and organicity are similar —to a certain degree and form— to those identifiable in the hard sciences and nature. For example, the above is plausible to understand if we focus on similarities that can be appreciated when studying the key components of complex systems such as the market process: prevalence of increasing returns, the subsistence of self-organized systems, mechanisms of continuous adaptation, the prevalence of sensitivity to initial conditions by agents and others such as “nonlinearity”. Tanya Sammut-Bonnici, *Complexity Theory*, In eds Cary Cooper, John McGee & Tary Sammut-Bonnici, *Wiley Encyclopedia of Management* (2015).
- 9 Following NYU professor, Israel Kirzner —1992—, we understand “market process” as “a set of institutions that facilitate voluntary co-operation and collaboration and exchange among individuals”. Israel Kirzner, *The meaning of market process*, In Mario Rizzo, ed., *Essays in the development of modern Austrian Economics* (Routledge, 1992).
- 10 Karina Montes & Luis Ferney Moreno, *Regulatory Improvement. Regulatory impact analysis* (Editorial Universidad Externado de Colombia, 2021).
- 11 MINCIT, *supra* note 2, at. 8.
- 12 This type of initial argumentation must be subject to further development to overcome its apparent character of “tautological reasoning” and even circular reasoning. This implies resorting to the formalization of the hypothesis and the use of mechanisms based on evidence.
- 13 Alberto Ruiz Ojeda *et al.*, *Regulation and Competition in Services of General Economic Interest (SGEI)* (Editorial Universidad de Málaga, 2015).
- 14 José Roldán Xopa & Drik Zavala, Virtual conference *Behaving badly costs: behaving well costs. Behavioral sciences, economics, and law*, Intel-Iuris Special Series: Frontier Issues in Administrative Law (2023).
- 15 Sammut-Bonnici, *supra* note 8.
- 16 *Id.*
- 17 Noveck, *supra* note 1, at. 36 et seq.
- 18 Kenneth J. Arrow, *Rationality of Self and Others in an Economic System*, 59(4) *The Journal of Business* 385, S385-S399 (1986).
- 19 Juan Castellanos Díaz, Rubén Méndez Reátegui & María Camila Paladines, *Study on the regulatory process of ultra-processed food labeling: Colombian case*, 6(1) *Revista Justicia & Derecho* 1-9 (2023).
- 20 Certainly, humans also make mistakes. Then, it is necessary to point out that there are many social scientists (Kahneman, Sunstein, among many others) who, based on experimental studies and/or derived from behavioral analysis, have shown that human errors can be systemic, observable, and predictable.
- 21 Noveck, *supra* note 1, at. 36 et seq.
- 22 Noveck, *supra* note 1.
- 23 Castellanos Díaz, Méndez Reátegui & Paladines, *supra* note 19.
- 24 Certainly, humans also make mistakes. Moreover, it is necessary to point out that there are many social scientists (Kahneman, Sunstein, among many others) who, based on experimental studies and/or derived from behavioral analysis, have shown that human errors can be systemic, observable, and predictable [Specific sources].
- 25 They are predominantly short term, and their validity horizon depends, in general, on the level of popularity of the rulers in the current polls.
- 26 In the field of AI, there are up to six (6) stages and/or phases. However, for this chapter, we have decided to focus on those that are recognized as the most developed and relevant (considering the advances in AI).
- 27 Karl Polanyi, *The great transformation of sociology* 355 (1st ed. Universidad Nacional de Córdoba, Facultad de Ciencias Sociales, 1944-2007).
- 28 Noveck, *supra* note 1.

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