



PROPOSAL FOR A MATURITY LEVEL SCALE FOR SOCIAL TECHNOLOGIES

**PROPOSTA DE ESCALA DE NÍVEL DE MATURIDADE
PARA TECNOLOGIAS SOCIAIS**

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ABSTRACT

Social technologies are potentially a way of fostering the development of a territory, as they focus on processes that aim at emancipation and, ultimately, improving the living conditions of the authors involved. In the contemporary context, there is an overvaluation of technologies that can be appropriated by the market. To identify the maturity levels of a technology, it is common to use the Technology Readiness Levels (TRL) scale. Social technologies, due to their purpose and nature, do not fully fit into this scale. The general objective of this article is to propose a maturity scale for social technologies that considers them in terms of social transformation. The research is characterized as exploratory and bibliographic, with a qualitative approach. The results present a scale of maturity regarding the insertion and adoption of social technologies that are induced and/or related to knowledge produced by academia, identifying their conception and adoption by social groups and their potential for transformation, considering their specificities.

Keywords: Social technologies. Scale. Method. Territorial development

RESUMO

As tecnologias sociais, potencialmente, são uma forma de fomentar o desenvolvimento de um território, pois focam em processos que objetivam a emancipação e, em última instância, melhoria das condições de vida dos autores envolvidos. No contexto contemporâneo, há uma supervalorização das tecnologias que podem ser apropriadas pelo mercado. Para identificar os níveis de maturidade de uma tecnologia é usual utilizar a escala Technology Readiness Levels (TRL). As tecnologias sociais, por sua finalidade e natureza, não se encaixam plenamente nessa escala. O objetivo geral deste artigo é propor uma escala de maturidade para tecnologias sociais que as considerem quanto a transformação social. A pesquisa se caracteriza como exploratória e bibliográfica, de abordagem qualitativa. Os resultados apresentam uma escala de maturidade quanto a inserção e adoção das tecnologias sociais que sejam induzidas e/ou se relacionem com conhecimento produzido pela academia, identificando sua concepção e adoção por grupos sociais e seu potencial de transformação, considerando suas especificidades.

Palavras-chave: Tecnologias sociais. Escala. Método. Desenvolvimento territorial

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INTRODUCTION

The creation of technologies has historically resulted from the search for solutions to human demands. It is observed that the development of new technologies is associated with the historical processes that outline the social, economic and cultural stimuli underlying this process. Thus, it is urgent to situate the emergence of new technologies in time and space, a measure necessary to effectively understand the foundations of their development. Currently, in common sense, technologies are identified as those means capable of improving productivity or achieving results applied to agriculture, mining, industry, the logistics sector or the digital environment, for example. This perception of the characteristics that define technologies is based on an instrumental conception, associated with the continuous modernization of productive and social structures related to the social division of labor established from the consolidation of industrial capitalism.

Since the First Industrial Revolution, at the end of the 18th century, the continuous modernization of the productive structure has implied the creation and consolidation of technologies that have produced the compression of space and time, with strategic effects on the increase in productivity, expansion of consumption and global integration into the structures of industrial capitalism and its international division of labor (Harvey, 2006). In this scenario, the creation of technologies dedicated to supporting this process and contributing to its constant modernization produces the uninterrupted obsolescence of technologies, the response to which is improvement or replacement. This process leads to an association between the creation of value and the development of technologies, with an impact on economic flows and living conditions. The successive communication resources created since the 19th century, such as the telegraph, telephone, radio, television and digital media, demonstrate the emergence of technological resources that are fundamental to the productive process and have had significant impact on social life. The instrumental dimension of these communication resources has contributed to the consolidation, in common sense, of the perception of technologies as exclusively associated with transformations in the economic environment and the means necessary for their dynamization.

The significant valorization of technologies constitutes one of the central aspects of contemporary society, with special attention to those that connect to market logic. Postman (1994)



classifies as technopoly the subordination of culture, and therefore of science, to technology, which results in a predominance of technological dominance over the ways in which society outlines its development and organization.

According to Silveira & Bazzo (2005), technology is currently perceived as the main factor of development that, in association with science, is classified as a social good to instigate market competitiveness and strategies associated with mastering this medium. This condition corresponds to the historical process of consolidation of the international division of labor under industrial capitalism, with technology playing a decisive role in the constant modernization of production and consumption conditions. Among the effects produced by this process is the rapprochement between universities and companies. The creation of mechanisms for knowledge transfer between academia and companies is an issue present in the debate forums of the contemporary scientific community, which reveals the insertion of science in hegemonic economic and ideological models. Still, other functions and approaches of science coexist and make up the scientific practice of contemporary times, albeit with less visibility.

However, the centrality of technologies goes beyond the economic dimension and related aspects. “Technologies create the ways in which people perceive reality, and these ways are the key to understanding various forms of social and mental life” (Postman, 1994, p. 31). The centrality of technologies in contemporary societies implies, in a certain way, the production of social reality itself. The overvaluation of certain technologies, called conventional by Dagnino (2014), outlines the understanding of science, whose function comes to be perceived as that of producing technologies, from an instrumental perspective, especially to enable the creation of marketable products. The insertion of scientific practice into the logic of the market is one of the paths used to establish the social legitimacy of science.

Understanding the functions of science and its possible contributions is based on breaking with the common sense that associates it with the creation of conventional and instrumental technologies, particularly with the necessary break with the stereotypes of impartiality and neutrality generally attributed to science. These stereotypes are equivalent to labels that uncritically nullify the differences between science and technologies, while legitimizing both only under the instrumental condition. It is thus understood that science and technology are subject to historicity, and therefore are not neutral, outlined by the structures of contemporaneity (Gil-Pérez *et al.*, 2001).



The complexity of the debate requires the presentation of the concept of technology and the structures that accompany it. According to Paiva (1999, p. 5), 'we can understand technology by encompassing the ethical, logical and mechanical dimensions. The first refers us to the questions of its origins and purposes, the second to its morphology and the third to the questions of processing'. The structure presented by Paiva (1999) shows how technology goes beyond its immediate application and has effects on social reality. Dagnino, Brandão and Novaes (2004) by distinguishing between conventional technologies (CT) and social technologies, contribute to the approach adopted as a theoretical framework in this paper. By proposing the concept of social technologies, the authors indicate a perspective of understanding technologies beyond their instrumental use and market relations. In the field of technologies, conventional technologies operate within the hegemonic logic of market and production relations, focusing on increasing productivity and surplus in the capital rotation cycle. Social technologies, on the other hand, present themselves as a way to conduct development processes from a different perspective, focusing on addressing social, economic and territorial inequities. It is clear that social technologies are based on development approaches that seek not to limit development as synonymous with economic growth. Social technologies are associated with the understanding of development as a search for social well-being and overcoming restrictions on individual freedoms (Sen, 2010), with a focus on the territorial approach to development (Dallabrida *et al.*, 2023), which prioritizes endogenous solutions that consider the specificities of each territory.

Carniello and Santos (2018, p. 31) indicate that 'social technologies take into account social inequalities, which, despite being the most evident reflection of the gaps in the development of a territory, are those that, in terms of marketing, generate the least interest'. The authors problematize how the development of territorially localized solutions aimed at reducing social asymmetries encounter difficulties in obtaining the political and economic support necessary for their implementation. This scenario highlights the preeminence of basing the conditions for the development and implementation of social technologies on public policies capable of promoting their implementation and structuring.

After presenting and outlining the context, the aim is to develop a methodological proposal to identify the level of maturity of social technologies. The scope of this proposal is associated with the characterization of a 9-point scale that identifies the implementation phase of a social technology (ST).



The approach proposed in this research is justified by the need to give more visibility to social technologies, since they are a way of acting in favor of development understood as social well-being, and to overcome the prominence of conventional technologies, which operate according to market logic. It is not a question of not recognizing the role of conventional technologies in society, but rather of giving visibility to social technologies on an equal footing, since both approaches are present and make up the dynamics of contemporary society.

THEORETICAL FRAMEWORK

Nowadays, technologies are at the center of economic, social and political processes on a global scale. The approach to contemporary societies implies the recognition of the massive use of technologies, whose presence is reflected in social interactions. Among the technologies with an overt and intensive presence in current societies, information and communication technologies stand out. Specifically, such technologies are structured in a metaprocess. This classification is based on the perception that social relations and daily practices are outlined and conditioned by the intensive use of mediation technologies associated with media companies. This condition allows us to identify the inseparability between media and society (Livingstone, 2010; Hjarvard, 2013). Social institutions are transformed based on their articulation with the media. The perspective presented in this paper is based on the understanding of how the media and their technologies contribute to the construction of contemporary social dynamics.

Based on this postulate, it is argued that technologies are not exempt from their socio-historical context. 'Technologies are not mere transparent tools; they cannot be used in any way: they are ultimately the materialization of the rationality of a certain culture and of a 'global model of power organization' (Martín-Barbero, 1997, p. 256). The idea that technologies are merely neutral tools, exempt from a moral and ideological agenda in everyday life, is refuted. The way in which technologies are conceived and developed is linked to values and ideological positions capable of contemplating the objectives of those sectors interested in their development. Thus, technologies and their effects are related to their creation process, not only to their application.



Identifying the social functions of technologies with their own design is strategic to enable the perception of the potential of social technologies. Unlike conventional technologies, social technologies have their genesis in the search for means to promote social and economic development with a focus on reducing social asymmetries. However, the structuring of this distinction is not spontaneous. Its achievement is related to the investigation of the effects of technologies on society, especially in the development process of a territory. Understanding the potential of social technologies is directly linked to their use in territories.

In the 20th century, more precisely during the 1960s and 1970s, the modernization paradigm associated economic growth and economic development as synonyms. This conception of modernization ignored the differences between societies and the territories that constitute them, by advocating that the transfer of technology and sociopolitical culture from developed societies to 'traditional' (Servaes, 2008) or developing societies would ensure a future convergence in a social model considered more efficient. In this scenario, the valorization of a single development model, derived from the central countries of capitalism, predominant in the international division of labor, with the classification of countries as developed or underdeveloped, guaranteed the maintenance of the ideological, political and economic hegemony of the model that was then consecrated. Contemporarily, this hegemony is questioned in view of the environmental, economic and social limits of the development trajectory of the central countries of international capitalism.

The preponderance of this conception in the past goes beyond power relations between states, as it found an echo in theoretical formulations that sought to explain how the development process occurs. Among the theoretical supports of this conception is Schramm's (1970) modernizing development perspective. The author proposes a model of national development based on the idealized reproduction of the experience of the central countries of industrial capitalism, with the support of mass communication technologies that were emerging globally at the time. For Schramm, mass communication technologies had the function of disseminating the experiences of countries that were considered developed at the time to underdeveloped countries.

As a counterpoint to this model, the concept of Appropriate Technology was formulated in the 1960s and 1970s. According to Dagnino, Brandão and Novaes (2004), 'innovation cannot



be thought of as something done in one place and applied in another, but as a process developed in the place where this technology will be used, by the actors who will use it' (Dagnino, Brandão and Novaes, 2004, p. 56-57). The proposal of the authors is fundamental to understanding the substantial differences between conventional technologies and social technologies, because by proposing the concept of Appropriate Technology, they demonstrate how structuring solutions to territorially anchored challenges implies the necessary relationship between the lived reality and the development of solutions to the structural challenges of each society. The concept of appropriate technology contextualizes the functions of technologies, by considering the historical, economic and social aspects inherent to the demand for knowledge and its conversion into technology, beyond its instrumental use.

By contextualizing technologies historically and socially, Dagnino, Brandão and Novaes (2004) insert them into the concrete perspective of development and its connections with the conditions of each territory, because:

The definition of what constitutes appropriate technology depends on the specific cultural, political, social and economic conditions of each country, while obviously respecting their different historical moments. Consequently, the effective design of production systems, processes and techniques must be a specific task for each interested country (Garcia, 1987, p. 26).

Subsequently, a change in the conception of technologies other than conventional technologies was observed. During the 1980s, the concept of Appropriate Technology was reevaluated and, from this process, another concept emerged, called Social Technologies. The context in which this concept was developed is related to the national scenario in the 1980s. At that time, economic stagnation and hyperinflation outlined a strong process of expansion of Brazilian social and economic asymmetries. The establishment of viable alternatives for productive inclusion, with access to income and opportunities, gave rise to the search for means other than the hegemonic model of capitalist technology development (Dagnino, 2014).

In this debate, social technologies (ST) are perceived as fundamentally different from conventional technologies due to their purpose, the emancipation of participants. Underlying their constitution, Social Technologies are the perception that the production process has its purpose



in promoting the emancipation of participants. This is an essential difference in relation to the conception and achievement of conventional technologies compared to social technologies. It can be inferred, from the comparison between the two, that conventional technologies focus on themselves, that is, they seek to optimize and increase the efficiency of the project in an isolated manner. The objective of Social Technologies, on the other hand, is to meet the demands of the entire society, with accessible methodologies adjusted to the realities of the communities, instead of benefiting only a restricted group belonging to the dominant classes, associated with the logic of permanent reproduction of capital in line with the insertion of each society in the international division of labor.

The comparative perspective between conventional technologies and social technologies implies establishing the differences and also the actions necessary to enable the implementation and development of this alternative to technologies associated exclusively with the reproduction of capital. Thus, social technologies are understood as '[...] a political process of sociotechnical reconfiguration, through which social practices mobilize methods and tools developed with the objective of promoting social transformations' (Souza and Pozzebon, 2020, p. 234). This assertion indicates that the viability of social technologies is associated with a different conception of how to provide opportunities for productive and social inclusion, with the configuration of technologies related to social emancipation. Thus, the distinctions between social technologies and conventional technologies are noted, which prioritize optimizing and increasing the efficiency of the project in isolation, from the perspective of capital (Carniello and Santos, 2018).

The description presented in this paper converges with the definition of social technology from the Institute of Social Technology (2004, p. 130):

Set of transformative techniques and methodologies, developed and/or applied in interaction with the population and appropriated by it, which present solutions for social inclusion and improvement of living conditions.

The concept of social technology presented by the Institute of Social Technology recognizes the need to establish social technologies based on the conditions relevant to each social group and their respective reality.



In line with the observations presented in this paper, we highlight the consideration present in the report of the CAPES Technical Products Working Group (2019, p. 36), with the assertion that social technologies are defined as ‘a transformative method, process or product, developed and/or applied in interaction with the population and appropriated by it, which represents a solution for social inclusion and improvement of living conditions and which meets the requirements of simplicity, low cost, easy applicability and replicability’. It can be seen, based on the definition presented in the CAPES report, that the classification as social technology excludes those processes that do not present an evident positive social transformation and are not aimed at the community.

This assertion corresponds to the consideration presented by Dagnino, Brandão and Novaes (2004). The authors emphasize that the emphasis of social technologies is on the process, and not on the product, developed in the territory in which this technology will be used, by the actors who will use it. Thus, a conceptual improvement in relation to the concept of appropriate technology is perceived, as the leading role of the actors in the territory is considered, particularly regarding the elaboration of actions necessary to enable social emancipation.

The contributions of Dagnino, Brandão and Novaes (2004) allow us to state that Social Technologies are based on the valorization of active community participation in the creation and implementation of solutions to local problems. This approach places people at the center of the development process, promoting autonomy and capacity to solve collective challenges. This conception, however, does not exclude the necessary support from public policies aimed at territorial development on a local and regional scale. The support of public policies enhances the participation of local actors, to the extent that contributions from communities make actions aimed at development more effective, by considering the particularities of each population within the scope of public authority action.

It is worth noting that the main focus of social technologies is the promotion of social equity, which is one of the main objectives to be achieved, which is in contrast to the objective of conventional technologies which, according to Dagnino (2004), are used as a way of maximizing the profits of private companies. Thus, social technologies present a new horizon in terms of creating strategies dedicated to economic and social development, by focusing their actions on promoting human emancipation.



Comparing social technologies with conventional technologies helps us better understand how both are organized according to different logics. Based on the contributions of Dagnino (2004), Table 1 demonstrates the author’s perspective by presenting the main characteristics of each type of technology, which allows us to efficiently visualize the disparate objectives of both.

Table 1 | Comparison of the characteristics of Conventional Technologies and Social Technologies.

Conventional Technologies	Social Technologies
<ul style="list-style-type: none"> - more labor-saving; - more intensive in synthetic inputs than would be convenient; - has ever-increasing optimal production scales; - its production rate is given by the machines; - environmentally unsustainable; - has coercive controls that reduce productivity. 	<ul style="list-style-type: none"> - adapted to small size; - liberating the physical and financial potential and creativity of the direct producer; - non-discriminatory (employer x employee); - capable of making self-managed enterprises and small businesses economically viable companies; - oriented towards the mass domestic market; - must be adapted to the reduced physical and financial size; - non-discriminatory; free from differentiation between employer and employee; - oriented towards an internal market of mass; - liberating the producer’s potential and creativity direct.

Source: adapted from Dagnino (2002, p. 20; p. 23).

As a process analogous and complementary to the one proposed in this paper, André and Oliveria-Melo (2023) systematize a Social Technology Development Process (STDP). The authors conceive of social technologies from the perspective of popular knowledge, considering diverse forms of knowledge present in society that can support development actions. For the authors, the integration between popular and scientific knowledge has the potential to contribute to promoting improvements in the living conditions and social well-being of the population. This perspective is opportune because it enables popular appropriation of the territory and inherent practices as elements with subsidies to stimulate the development process. The creative economy, for example, can be enhanced by recognizing aspects of popular culture and practices as vectors of social technologies.

The reference model for the Social Technology Development Process, proposed by André and Oliveria-Melo (2023), includes essential activities and principles that ensure both the creation and multiplication of social technologies. In addition, it seeks to reduce uncertainties



and avoid mistakes in decisions regarding the management of technology development time. The steps foreseen in the STDP, according to the authors, are organized into the pre-development; development; and post-development phases, contemplating social participation and cooperation in the process. The authors' contribution is unique in proposing a model for the constitution and consolidation of social technologies.

Based on the theoretical framework presented, a maturity scale for social technologies is proposed. This proposition is necessary for the production of adequate criteria for a careful evaluation of social technologies.

METHOD

The research is characterized as exploratory and bibliographical, with a qualitative approach. 'The studies that aim to carry out this review allow for the understanding of the movement of the area, its configuration, theoretical methodological propensities, critical analysis indicating trends, recurrences and gaps' (Vosgerau; Romanoum, 2014, p. 167). The design proposed in this method is based on the considerations made from the theoretical foundation of this paper. The proposition of the classification of the level of maturity of social technology requires knowledge of the debate on the topic and, simultaneously, the challenges pertinent to the constitution and consolidation of social technologies.

A proposal for categorizing the maturity level of social technology was made, based on a theoretical framework. Bibliographic searches were carried out in the CAPES Periodicals collection and the Google Scholar search system. Once the reference texts were identified, a reflexive and analytical approach was taken so that the theoretical concepts of social technologies would support the proposal of a maturity level scale for social technologies, based on phases regarding the induction of social transformation and in parity with the TRL stages (Mankins, 1995).

The methodological choice of maintaining parity in the scale is highlighted, as it is justified by: i) enabling comparative data analyses; ii) giving the same visibility to ST in relation to CT; iii) encouraging the applicability of the scale, since there is already a history and a set of productions based on the 9-point scale.



It is reaffirmed that standardizing a 9-point scale does not mean ignoring the specificities and differences between social technologies and conventional technologies, already explained in the theoretical framework, but rather highlighting the value of social technologies in the contemporary context.

RESULTS AND DISCUSSION

The process of evaluating social technologies makes it possible to provide the necessary assessments for their improvement, particularly when comparing their relevance with their relatively recent condition of formulation and achievement. This assertion is based on the urgency of developing this scale to provide visibility to social technologies as well as demonstrate their relevance and applicability. The strategic function of knowledge is considered in light of the need to support processes of establishing social technologies, including for public policies that can contribute to supporting them. In this sense, Dagnino (2010) defends the need to build scientific-technological knowledge about social technology, as a way of supporting the development of public policies, such as the Bill (PL) 3329/2015, currently under consideration, which

institutes the National Social Technology Policy (NSTP); defines social technologies as techniques, procedures, methodologies and processes, products, devices, equipment, services and organizational and management social innovations, developed or applied in interaction with the population and that promote social inclusion and improvement of the population's living conditions (PL 3329/2015, n/p).

The definition presented in the Bill is broad, including several possibilities for the development of social technologies. However, the effectiveness of social technologies goes beyond the mere needs of each segment of the population and their respective territorial insertion. There is an urgent need to base social technologies on knowledge that favors their structuring and development to achieve effectiveness capable of promoting productive and social inclusion. Scientific and technological knowledge is strategic for the consistency of social technologies.

The recognition of the need to base the development of social technologies on scientific-technological knowledge implies the search for references that can constitute parameters for evaluating the level of maturity of the social technologies themselves. It is worth noting that for conventional technologies, the Technology Readiness scale is used. Levels (TRL) to identify



technology maturity levels (Mankins, 1995), which identifies 9 levels, starting from an idea (TRL 0), according to Pierro (2019).

- TRL 1 - basic research, identification of knowledge base.
- TRL 2 - formulation of technology, design of possible applications.
- TRL 3 - applied research, laboratory tests and proof of concept.
- TRL 4 - reduced scale testing, technology validation in a controlled environment.
- TRL 5 - pilot scale test, model validated in a simulated environment.
- TRL 6 - prototype under test, situation close to expected performance.
- TRL 7 - demonstration, prototype analyzed in an operational environment.
- TRL 8 - pre-commercial phase, technology ready and validated in a real environment.
- TRL 9 - application of technology, product ready to go to market.

The use of references dedicated to conventional technologies does not imply the uncritical reproduction of this knowledge, but rather its appropriation through consideration of the particularities and purposes of social technologies. Thus, in line with the scale presented, a maturity scale for social technologies was proposed. A proposal for categorizing the maturity level of social technology was made, based on the theoretical framework presented in the second section of this paper, designed to indicate the references considered to support the investigation. The interaction with communities and the potential for reapplication of social technology were adopted as parameters for the scale, considering the perspective of social emancipation in the context of the international division of labor and its social and economic effects.

It is important to note that the process of social technologies is rarely linear, as it involves dialogic and participatory constructions with social groups, which does not necessarily occur sequentially, to make it clear that the proposed approach is far removed from evolutionary, progressive, or even production line approaches. Thus, a 9-point scale is accepted, but we are aware that the path is not necessarily linear. Therefore, a project that is identified at a given moment in Phase 6 may return to previous phases, and this does not mean a setback, but rather part of the process. The scale is not intended to assign scores to projects that involve social technologies, but rather to support an analysis, since the emphasis of a social technology is on the process, and not on the final product .



After these considerations, the Social Technology Maturity scale (STM) proposed to assess the level of social technology maturity is presented below, organized into 9 phases, in correspondence with the TRL.

STM 1: basic idea conceived and conceptual references defined and/or constructed to understand social dynamics and identify and characterize social group(s) for future formulation of social technologies.

STM 2: phenomena and demands capable of interaction for social transformation are identified.

STM 3: based on a theoretical framework and the group in dialogue with the social group(s) involved , an exploratory modeling of a social technology process is proposed.

STM 4: conceptual testing of the process with dialogical participation of the social group(s) involved.

STM 5: empirical testing of the process in the environment of the social group(s) involved with the participation of the social group(s) involved.

STM 6: application and dissemination of social technology(ies) in the total environment with the participation of the social group(s) involved.

STM 7: Measurement of the effects of technologies on social transformation in the social group(s) involved , adjustments and systematization of the processes of the social technology(ies) developed with listening and participation of the social group(s) involved.

STM 8: training of multipliers in the social group(s) involved, application and use of social technologies.

STM 9: incorporation of social technology(ies) into the daily practices and routines of the social group(s) involved.

The scale was created to verify the relationship between academic research that can potentially stimulate and/or participate in the processes of creating social technologies, to give visibility to the mechanisms of the relationship between academia and other audiences, beyond the relationship between academia and the market, which is the most visible and valued in the current model of society. It is noted that not all ST has participation from academia, but academia can expand its role as a participant in the construction of social technologies and give visibility and value to ST as a construct and vector of development.



Another fundamental aspect of the proposed scale is to enhance dialogue with the sectors responsible for managing public policies that can contribute to the creation of social technologies. Although the focus of social technologies is on the emancipation of social actors, it is necessary to consider the economic and social fragility inherent to social actors in their respective territories. The challenge is to overcome approaches to designing public policies that are conceived without effective popular participation. Knowledge about the peculiarities present in each territory contributes to the recognition of potentialities and challenges, particularly with regard to simultaneously structuring and evaluating social technologies to increase their effectiveness in the territory for the benefit of the population.

FINAL CONSIDERATIONS

The proposal of the STM scale is expected to contribute to the identification and analysis of social technologies so that, with a systematized view of the process, it is possible to improve the processes of formulation, dissemination and implementation of these technologies in favor of social transformation towards the development of territories and overcoming social and economic inequities.

The proposal of suitable methodologies for the evaluation of social technologies or other resources for development, both at the local and regional scales, represents a substantial challenge for researchers dedicated to the field of management and regional development. It involves moving from the application of tools for evaluating development processes to the presentation of methodological resources based on both previous experience with the subject and the observation and study of similar resources applied in other areas of knowledge and sometimes with objectives different from those associated with social technologies.

By proposing a scale that is on par with that widely applied to conventional technologies, the aim is to provide the necessary evidence for social technologies, which can be configured as drivers of territorial development processes based on their specificities. The scale proposed in this paper has the potential to contribute to territorial development by enabling the measurement of social technologies. Still, its contributions are potentially related to the



debate on the establishment of mechanisms for evaluating development processes beyond those conventionally adopted and insufficient to contemplate the multidimensionality of development in the territory. Conventional resources such as the Gross Domestic Product (GDP) or composite indicators such as the Human Development Indicator (HDI) or the GINI index are not completely refuted. However, the urgent need to develop methodological and analytical resources capable of measuring development processes and, simultaneously, capable of contributing to the economic and social inclusion of the actors participating in the actions carried out in the territories is affirmed.

In the case of the work in question, it is important to highlight the need for future studies related to the application of this scale in a sample of social technology processes, whether they originated in the academic environment or emerged from other initiatives, in order to test the scale and, if necessary, make the necessary refinements and adjustments, with the expectation of effectively contributing to the development of the territory. In parallel with this finding, it is necessary to consider strategies to promote the use of the scale proposed in this work, so that it fulfills its purpose of giving visibility and recognition to social technologies.



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