Local Innovation Systems: An Analysis Based On Neoinstitutional Theroy

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Abstract:

Background: The theory of institutional logic seeks to understand the role of culture and cognition in the process of institutionalization of projects, as well as identifying the influence of the set of actors and entities from different segments, which produced and reproduced their lives, making their experiences meaningful in the process of institutionalization of each project. This research sought to analyze the institutional logic used in the preparation of regional technological development programs in Londrina / PR.

Materials and Methods: A bibliographical survey was carried out on the institutionalization process, based on the Neo-Institutional Theory, as well as a survey on the main technological development projects carried out in the last 25 years. The objective was to answer the following research questions: What was the historical path of the municipality of Londrina regarding actions for technological development? What are the different institutional logics that permeated the technological development programs already carried out in Londrina/PR? And, what elements involved in the process caused such programs to lose strength over time? Developed through a single case study, this research contains both qualitative and descriptive characteristics. We collected interviews as primary data; so, to collect secondary data, we resorted to desk research.

Results: Results indicate that the local culture, political factors, and lack of resources made it difficult for such projects to continue.

Conclusion: About the history of the city of Londrina, with regard to actions aimed at technological development, we observed that numerous actions that were carried out in order to foster the importance of technological development in the region. It was also possible to notice that during the institutionalization process there were some phases: habitualization, objectification and sedimentation.

Key Word: Local Innovation System; Neoinstitutional theory.

I. Introduction

Accepted as fundamental elements for economic and social development, science, technology, and culture represent, in the last fifty years, drastic changes in the Brazilian social structure, since it stopped being a rural society and became an industrial and urban one. Along this path, new political demands, economic expectations, and social participation were also inserted in the context as active components of change [11].

To understand the current scenario, as a starting point, we will appropriate the stationary economy model used by Joseph Alois Schumpeter. He explains that, in this type of economy, all activities and relationships take place in a circular fashion, with producers and sellers of goods simultaneously. That is, as buyers and consumers, since production is guided by consumption.

According to the author, the condition of entrepreneur is not permanent or inherent to certain people, it does not correspond to a profession or social class but is closely linked to an innovative function [40].

In this sense, it appears that the core of analysis no longer focuses exclusively on the individual company, but starts to focus on the relationships between companies and other institutions within a geographically defined space; as well as privileging understanding of the characteristics of the environment where they are inserted in. In the search for competitiveness, there are several configurations discussed in literature on ways to promote local development, for example, through the formation of cooperation networks, production chains, local productive arrangements, among others. A model that is highlighted in this process corresponds to the Technology Parks,

due to its positive results at the international level, regarding the expectations of government agencies, as well as those of public policy coordinators, whose main objective is regional development [62].

The dissemination of all types of networks is currently considered the most striking form of organizational innovation associated with the dissemination of the new standard. Such systems and modes of articulation can be both formal and informal, being both recognized as fundamental in the generation and dissemination of knowledge, particularly the unspoken ones.

From the Schumpeterian perspective, entrepreneurs would be the main innovation agents and leadership holders in capitalism, in addition to favoring collective processes of learning, cooperation and innovative dynamics, these new arrangements start to occur, each with its particularities, in different places in Brazil such as Santa Rita do Sapucaí/MG, São Carlos/SP and Londrina/PR, among others.

Specifically in the Northern region of Paraná, studies show changes in business and society from the 60s, after the various frosts and the one in 1975 known as "Black Frost", which estroyed the culture of coffee production. With the end of coffee growing, which was the "propellant" of the local economy, it was necessary to discuss and define a new economic matrix [11].

Thus, several institutions had to become more flexible to accompany all this development, to assimilate the changes that had taken place. Some sectors of Londrina society began to organize themselves, trying to identify what would be the city's vocation. Londrina observed a series of innovation assets (universities, research centers, skilled labor) that could be better used to the city's development process. In the search for competitiveness, local development gains a new dimension, from the formation of cooperation networks and production chains [2].

However, during this process, there were numerous difficulties; in fact, they still continue to implement policy proposals that take into account the challenges and opportunities currently posed to society, [7] due to the lack of understanding the particularities of the innovative process. Thus, once this misunderstanding was also present in the experience of Londrina, a better understanding of the factors that affected the different experiences in the municipality with a focus on local technological development was needed.

To carry out the analysis of the case at hand, the theory of institutional logics will be used as a theoretical framework, about the studies of organizations, guided by institutionalist theorists who assume that the organization does not only have a technical dimension, but also the symbolic. Such theory seems to be the most appropriate for this type of analysis, as it seeks to understand the role of culture and cognition in the institutionalization process of the projects. As well as to identify the influence of the set of actors and entities from different segments, who produced and reproduced their lives, making their experiences significant in the institutionalization process of each project.

From this perspective, discussions surrounding Institutional Theory in the context of organizational studies emphasized the ways in which institutions restrict organizational structures and activities, thus explaining the convergence of organizational practices within the same institutional environment [5]; that is, institutional work refers to the intentional actions of organizations in relation to institutions. Through this activity, an organization can create, maintain, or discontinue an institution.

Therefore, this research focuses on studying the subject from a new point of view by proposing the following research questions: What was the historical path of the municipality of Londrina regarding actions for technological development? What are the different institutional logics that permeated the technological development programs already carried out in Londrina/PR? And what elements involved in the process caused such programs to lose strength over time?

Such inquiries are motivated and based on notes [47] that show that Brazil has built a sophisticated, but still incomplete, national system of Science and Technology created to solve specific problems, without central planning or coordination of the inclusion in the country's development agenda.

II.   THEORETICAL REFERENCE
Beginnings of Institutional Theory

To understand the concept of Institutional Theory, it is necessary to insert it in the context of institutions and study it throughout history. Starting with [45] empirical analysis of organizations and the institutional environment and [39] theorizing, which expose how institutions work to integrate organizations with other organizations in society through universalist rules, contracts, and authority.

The more bureaucratic vision that dominated the modern world focused its efforts on creating increasingly effective structures, designed to fulfill formal tasks linked to these organizations [27]. In this regard, [21] perspectives in the 1970s prioritized the agency of actors in certain circumstances prevailed. Thus, decisions relied on the interpretation of senior administrators who led the organizations.

Thus, from the 1970s, [30] and [62] discuss a new approach to institutional analysis emerged that highlighted the role of culture and cognition in institutional analysis. The dissemination of these studies took place through the publication of the article Institutionalized Organization, later called Neo-Institutional Theory or New Institutionalism.

However, according to the interpretation of [50], there is still a lack of consensus regarding some concepts of this theory, still in consolidation during organizational studies, due to the diversity of research topics, which represents a variety of empirical contexts. Therefore, the understanding is that the Neo-Institutional Theory is still in the process of maturity, in other words, still institutionalizing itself.

From a macro perspective, [31] emphasized the role of modernization in the rationalization of rules taken for granted, leading to isomorphism in the formal structures of organizations. From the perspective of [55], one of the fundamental characteristics of the economic perspective of Institutional Theory is the insertion of the economic process within the framework of social construction, manipulated by historical and cultural forces. The focus on social change arises with the work of Robert Merton. His studies focused on the dynamics of social change in order to understand the relationships between the elements of organizational structure from empirical work. Elements that, by in turn, by interrelated, maintained the balance of the system.

According to the perspective of the authors [56] and [51], it is noteworthy the figure of Philip Selsnick, a disciple of Merton, most associated with the origins of the theory. He was the one who introduced the basis of an institutional model capable of interpreting organizations as a structural expression of rational action, which, over time, are subject to the pressures of the social environment and are transformed into organic systems. Thus, the presence of organizational forms, socially legitimate models for building organizations, gives order and structure to different spheres of organizational life [20].

Institutional Logic

To understand the concept of Institutional Logic, as mentioned in previous sessions, it is essential to place it in the context of Institutional Theory and Institutional Analysis, starting with [45] empirical analysis of organizations and institutional environment. It is also worth noting the great contributions of [39] to the concept of theorization, which exposed how institutions work when integrated with other organizations in society, following universal rules.

In the 1970s, influenced by [31] and [63], a new approach to Institutional Analysis emerged that highlighted the important role of culture and cognition. Consequently, what they named as "the new institutionalism" became known because of its rejection of rationality, that is, as an explanation for organizational structure through legitimacy and not through efficiency as an explanation for the success and survival of organizations [49].

Institutional logics shape rational behavior, as they center on culture as a source of institutional analysis and are defined as [...] patterns socially constructed through the meaning of symbols, values, beliefs and rules, by which individuals and organizations produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality [52].

[3] were responsible for introducing the term institutional logic to describe the contradictory practices and beliefs inherent in the institutions of modern Western societies. For them, capitalism, state bureaucracy, and political democracy are conflicting institutional orders due to the distinct practices and beliefs that shape how individuals relate to each other in political struggles.

In the view of [18], institutions are understood as activity patterns rooted in material practices and symbolic systems through which individuals and organizations produce and reproduce their lives, making their experiences meaningful. From this understanding, they formulated the initial theoretical of institutional logic in a book chapter called "The New Institutionalism in Organizational Analysis". As a main criticism, they argued that in order "to understand the behavior of actors, they need to be placed in an institutional context that regulates behavior and provides opportunity for action and change" [54].

In this sense, the Neoinstitutional School distinguishes due to the non-deterministic view of society formed by subsectors, also called institutional orders of an interinstitutional system. A system that, through family and religious institutions, and through the market and state, restrict the means and ends of individual behavior, being essential to individuals, organizations and society. This is because each institutional order includes a set of its own symbolic or material meanings, that is, its institutional content [18]. However, it is necessary to emphasize that, in parallel with the restrictions imposed by institutions; they also provide sources of action and change. Since the contradictions inherent in the differentiated set of institutional logics provide cultural resources to transform individual identities, organizations, and society for both individuals and groups as well as organizations.

Because they are "logics of interdependent institutional orders, they are also potentially contradictory" [18]. In this sense, various institutional logics available to actors can interact and compete for influence in social domains. As a result, the logic of a group can infuse the same practice with different meanings because, in a simplistic way, it can be understood that institutional logic is the mode of operation of certain groups.

That is, institutional logics provide a more in-depth analysis of institutional relations by adopting them as a way of explaining individual or collective actions. For [53], institutional logics are an analytical advance in the cultural analysis of approaches that cannot be measured or observed directly in the organizational field. "They

specify a priori ideal-type models of cultural practices and symbol systems within specific contexts, illustrating how culture is anchored in a set of elementary building blocks."

In line with this reasoning, [18] and [24] understand that practices incorporated the institutional logic, supported and reproduced by cultural assumptions and political struggles. Emphasizing not only the symbolic resources and inter-institutional contradictions of the system, but also focusing on the normative dimensions of institutions and on the intra-institutional contradictions of contemporary forms of organization; as connections pointed out by the authors between the market and the family, the professions and the corporation.

For [13], institutional logic is concerned with describing, identifying, and classifying institutions, establishing criteria to represent the influences of culture on the action of a dominant sector of society, overriding the higher societal logics that influence organizational actions.

Thus, even with variations in emphasis, the definitions of institutional logics presuppose a central meta-theory that indicates that it is necessary to analyze the context to understand the behavior of individuals and organizations. This institutional context regularizes behavior and offers opportunity for agency and change. Individuals, organizations, and society constitute three nested levels, in which institutions at the organizational and societal levels progressively specify higher levels to create opportunities and restrict individual action [18].

In short, institutional logics were defined as "socially constructed historical patterns of material practices, assumptions, values, beliefs and rules by which individuals produce and reproduce their material livelihood, organize time and space, and provide meaning to their social reality" [18]; [24]; [52]. Therefore, institutional logics, in addition to providing integration between social and economic structures, might also enable common rules and meanings within institutions to be legitimized.

The debate about how institutions affect individual and organizational behavior, how they create and change institutions is not a new idea. The concept of society constituted by different institutional orders has been discussed by several scholars such as [12]; [22]; [31]; and, [58]. This approach to rational and non-rational environments argues that it is necessary to understand meaning in comparison with others. Based on the social construction of [8], any actor can be nested in a combination of institutional orders, exposing them to conflicting and compatible symbols and practices available to reinterpret, explore, export, and change.

Institutional logic research advances Neoinstitutional Theory beyond isomorphism studies with which we learn that companies have become the same over time. Given this discussion, concerns emerge that isomorphism cannot explain the homogeneity relationship of organizations, that is, if all companies have become the same, why do we still have different responses in organizations? To answer this question, the concept of institutional logic needs to be known and, simplistically, we can say that institutional logic represents the values and beliefs within a company, that is, we can use this theory can to describe the variations in different responses of organizations.

To exemplify the different responses that are offered by organizations, we propose to think about organizational strategies aimed at sustainability. They can represent an organizational value or just a change in behavior towards more sustainable actions in society, since the actors in the field, customers, and society in general put external pressures on the company. In this sense, [18] argued that institutional orders are interdependent, and actors can manipulate logics, however, they specified only three interdependent and autonomous levels of analysis - society, organizations, and individuals without suggesting how this occurred.

With a view to advancing the development of theory, [54] followed with a literature review that identified the five fundamental meta-theoretical principles of institutional logic, (i) incorporated agency, (ii) society as an inter-institutional system, (iii) the material and cultural foundations of institutions, (iv) the historical contingency of institutions; and (v) institutions at multiple levels of analysis [18].

Thus, according to such explanations, institutional logics propose a link between agency, individual cognition, and socially constructed institutional practices and structures. They also defend the idea that all institutions have a central and superior institutional logic, that is, a set of practices and symbolic constructions constituting their principles and are available to organizations and individuals, such as studies of corporate governance or institutional transparency [44].

Corroborating the theory, [57] brings the idea of "institutional illogic", that is, the unconscious dynamics in the analysis of institutions. The study shows that people's organizational lives can be shaped by dynamics that are beyond reason, just as social structures embedded these dynamics. The concept of Institutional Illogic (unconscious + institution), particularly social defenses and shared fantasies in organizations and institutions, aim to encourage balance, along with the influence of institutional logic of analysis.

Individual, Collective and Institutional Logic

Human interaction builds the identities of individuals in organizations, by sharing goals, rules, and values in such a way that sometimes there are people who identify with the collective identities of a group, profession, organization, or population institutionalized. This happens when institutional logic exerts its effects on individuals and organizations. [60] assert to this sense that, from a social point of view, the order that is established or not,

results from the sharing that occurs in human interaction. From an individual point of view, identity is a key element of subjective reality and is in a dialectical relationship with society.

From this perspective, the individual is a product and producer of the social system, building a collective identity as members of multiple social groups, including profession, gender, racial and ethnic groups, social movements, and individual organizations. The collective identity aims to integrate the cognitive, normative, and emotional connection experience by a given group because of the meanings shared with other members of the social group. In other words, collective identities emerge from interactions and social communications between members of a group that give the same meaning to something or someone.

For [24] as collective identities institutionalize, they develop their own distinct institutional logic, and these logics prevail within the social group. In this sense, under the same perspective, [54] compiled the main studies that discussed the effects of institutional logic, described in Table 1.

TABLE I.   EFFECTS OF INSTITUTIONAL LOGIC

Study	Theory
[23]	Theory of moral feelings embodied in collective identities of organizational forms.
[52]	Change from editorial logic to market logic in the collective identity of competitors in the higher education publishing market.
[25]	Architects' strategies based on institutional business, profession, and state logic that focus attention on distinct competencies - serving clients, building great architecture, or managing facilities.

Source: prepared by the author from Thornton and Ocasio (2008).

Although in different levels of analysis, in all of these cases, identification with the respective institutional logics occurs directly. Regardless organizational designs, market competitors, professional associations or any other social grouping, because identification with the collective is equivalent to identification with the prevailing institutional logic.

Disputes for status and power are universal systems for individual and organizational actions that connote the imposition of will on others, which result in domination implying obedience. Therefore, domination is the power obeyed and incorporated. However, from an institutional logic perspective, although power and status differences are present in all organizations, these systems are conditioned to the predominant institutions. [15]; [52]; [28], saw that institutional logics shape and create the "rules of the game", the relationships and means by which power and status are conquered, maintained and lost in organizations [24]; [37]; [28]. Thus, and through research, it is possible to identify the sources of power and status, their meanings, and consequences, understanding how these differences in power and status are associated with the prevailing institutional logic.

The institutional logic becomes predominant from the moment social actors generate conditions for the reproduction of the predominant logics. [24] corroborates this reasoning when he explains that competition for power, status and position in organizations shape the creation and reproduction of a bureaucratic patrimonial logic in American companies. This logic is perceived when it is necessary for social actors to comply with rules, the use of language, and symbolic management to reproduce the formal structure and achieve career success, while promotion standards are parallel to the heritage structure, serving informal status hierarchies and power structures.

[52] employs the relationship between institutional logics and power structures under an editorial logic in which power structures are determined by the size and structure of the organization. Through market logic, ultimate relationships are shaped by competition and resource acquisitions so that power structures are determined both by competition in the product market and in relation to the corporate control market.

In turn, [61] adds the perspective of institutional logic to explain the classification of occupational prestige, as the author seeks to explain how a hierarchical order of occupations should be recognized through a system of meaning shared by members from the same community. In this way, [61] proposes an institutional logic of social recognition to explain causal mechanisms, arguing that what is appropriate and legitimate must be seen as transcending self-interest and group boundaries, and be accepted by a wide audience.

The importance of categories in the formation of individual cognition is emphasized by [13] as an essential mechanism through which institutional logics shape individual cognition through social classification and categorization. Likewise, many cognitive psychologists attest to the importance of categories in the formation of individual cognition and emphasize the study of object categories that occur in nature, the classification and categorization of social and organizational categories are determined by social institutions [14]; [43].

Institutional logics provide agents within organizations with socially constructed classification systems, which according to [23] constitute categories of social actors and organizational forms. Therefore, the categorization processes have been particularly central to work on institutional logics, focusing on logics that

reside in competing organizational contours [23]; [41]. However, it should be noted that changes in institutional logic led to the creation of new categories, as well as changes in the meaning of existing categories [42]; [38].

Thus, following the contemporary perspective, both theoretical and empirical research offer key mechanisms to explain how organizational attention moderates institutions. According to [35]; [36], organizational responses to economic and social factors are measured through the attention of organizational decision makers. In other words, this means that in a theoretical analysis of how organizations respond to economic adversity, it proposes that institutional logics affect the allocation of attention to alternative schemes to perceive, interpret, evaluate, and respond to environmental situations.

In accordance with institutional logics, [36] also suggests two mechanisms of institutional structuring centered on care, provoking a set of premises for decision and motivation for action. The first one corresponds to the need to generate a set of values that order the legitimacy, importance and relevance of issues and solutions. The second mechanism refers to providing decision makers with an understanding of their interests and identities.

The author's argument about these empirical studies refers to the fact that decision makers' attention is concentrated only on issues and solutions that are in line with the prevailing logics. While, in fact, institutional logics focus attention on issues and solutions through a variety of mechanisms, including determining their appropriateness and legitimacy. This rewards certain forms of political behavior in organizations, shaping the availability of alternatives, and selectively focusing attention to environmental and organizational determinants of change. The empirical results of the research support this argument, by highlighting how the effects of market forces are subject to prevailing organizational logics, mediated by attention processes.

The Local Dimension of Economic Development of Innovation

Despite all the difficulty that the innovative process presented in analyzing the dominant concept of economic theory, in the 1980s, several contributions from the literature discussed the localized character of economic development and innovation, as well as its real importance. They sought to explain at a global level the rate of introduction of innovations, within some regions, sectors and companies tending to play the role of main drivers of innovations, while others seem to be relegated to the role of adopters.

As a result, the focus on the localized character of innovation gained evidence, considering the various efforts to equate how the relationships between the local and the global will be established, and the role that each of these dimensions results in an economic and political levels. Thus, based on [9], the interaction between technology and local contexts has a fundamental role in the generation of innovations, through specific learning mechanisms formed by a local and specific institutional group.

The innovation economy perpetuates the understanding of the need for interaction between the processes of knowledge generation and innovation established from the interaction between agents located in the same space, where the generation and diffusion process benefits innovation [26].

Since the 1980s, the analysis of different experiences has demonstrated the technological dynamism and the potential for development inherent to different types of arrangements, especially about medium and small companies located in nearby locations. From the perspective of [26], this is directly related to the concept of industrial districts, coined by Marshall in the late nineteenth century, which refers to an economic milestone as it results from a pattern of organization in the textile sector that was geographically located in clusters, in periphery of production centers. This approach became a reference for supporting recent works on local industrial development arrangements [26].

From these analyses, the process of elaborating collective learning strategies, forming bonds and interaction between these different elements related to the socioeconomic and historical context, generating territorial identity. In this sense, [48] asserts that certain factors correspond to the main attributes of contemporary industrial districts, such as: geographic proximity, sectorial specialization, predominance of small and medium-sized companies, close collaboration between firms, competition between firms based on innovation, confident sociocultural identity, active support organizations for the provision of common services, financial activities, and promotion of regional and municipal governments.

The group of authors [16]; [17], [29]; [30] and [34] argue that national performances about innovation clearly derive from a particular social and institutional confluence and historical characteristics. In such a way, that they define the national innovation system as one constituted by elements and relationships that determine, to a large extent, a country's learning capacity to innovate and adapt to changes in the environment.

Likewise, in line with such arguments, the different approaches of national innovation systems are structured on three pillars, understood by [48] as:

I. competitive advantages result from variety and specialization, and that this fact has path-dependent inducing effects, that is, specializations that present economic success occur particularly around specific industrial structures.

II. technological knowledge is generated through fundamentally interactive learning, generally taking the form of skills distributed among different types of economic agents that must interact, in some way, so that it can be used.

III. economic behavior rests on institutions and the "rules of the game" established legally or through customs that evolve in view of the advantages they offer in reducing uncertainty. Thus, different modes of institutional organization lead to different behaviors and economic results.

Therefore, this diversity among national innovation systems is understood as a product of different combinations of their characteristics. In such a way that the local dimension of innovation enables the conceptualization of local innovation systems such as regional or local technological systems.

Therefore, after surveying such aspects, the author [7] interpreted that the conceptual proposal of a local innovation system offers an understanding of the innovation process from its diversity, among different countries and regions. It takes place by considering the historical process and its institutional political designs, with a focus on the different stimuli of the learning process and the dissemination of knowledge, as well as the necessary diversity in the forms of the policies involved.

In a similar direction, [26] assert that "the local dimension is constituted from the innovative capacity, and that local arrangements show interactive (collective) learning and the capacity for innovation as a feasible alternative for economic development". However, in order to do so, it is necessary "to establish the notion of flexible specialization and the belief of an ongoing transition towards localism and regionalism, consolidating a resurgence of interest in the potential of local and regional economies".

Overall, when questioning the importance attributed to the local dimension, an underlying question emerges, what would be the form of local arrangements that would survive in the new context? Thus, the formats that involve small suppliers established in a network around a large leading company in the arrangement stand out. In other words, it is common for small firms to concentrate around large companies to supply specific inputs or components, acting in partnership to obtain the product according to the desired specifications.

III. Material And Methods

In methodological terms, this research has a qualitative, applied, and descriptive approach, developed via a case study, since its proposal is to describe the perception of informants, in addition to understanding the historical and social context in which the phenomenon occurred. This type of research proved to be relevant with the proposed operationalization addressed in the work, once it represents "means to explore and understand the meaning that individuals or groups attribute to a social or human problem" [10], recognizing the subjective element in the analysis process on the phenomenon studied.

Regarding data collection, this study will emerge from primary and secondary data collected. According to [59], the variety of evidence from a database will substantially increase the quality of the case study, making it possible to study more thoroughly the desired phenomenon. Therefore, the primary data will come from interviews conducted through a semi-structured script and direct observation with people who coordinated the regional technological development projects and innovation system in Londrina.

As for the definition of the unit of analysis, some aspects were taken into consideration. Namely: 1. The level of organization of the municipal normative instruments; 2. Degree of participation of organized civil society in the technological area; 3. Technological assets of the studied municipality; 4. Presence of different technological development projects in the region; 5. Proximity to the research locus (accessibility).

Based on the experiences that took place in Londrina, we defined the criteria for each (of the) initiatives/studies that would be analyzed. The criteria were: 1) the existence or not of a formally constituted project, whether it includes socio-environmental studies and, 2) whether it was implemented during the period of analysis, that is, in the last three decades.

The interviews will be directed to the people who coordinated the technological development projects carried out in Londrina, selected for this study, relying on the criteria previously highlighted in the Industrial Development Plan of Londrina - PDI (1994). For the projects, the technique known as snowball will be used, which corresponds to a non-probabilistic sampling technique. In this technique, individuals selected to be interviewed invite new participants from their network of friends and acquaintances who, in turn, indicate new participants. Thus, successively, in order to gather information at different periods (before, during and after), we implemented the snowball technique in each of the projects analyzed in order to identify the institutional logic used in the preparation of regional technological development programs in Londrina/PR until it is reached the proposed objective (the "saturation point").

About data analysis, we will use the Content Analysis (CA) technique, as it works with the categories arising from the theoretical foundation, emerging from the data collected and/or considered relevant by the researcher [4]. Likewise, [33] states that the classification movement that privileges the meaning of field material should not seek an essentialist truth in it, but the meaning that the interviewees express so that. Little by little, the researcher reaches the sense of speeches, and their empirical contextualization called the actors' internal logic.

IV.   LOCAL DEVELOPMENT PLAN - PDI (1994 - 1997)

Londrina was considered for a long time as a city focused on agribusiness and the provision of services. After identifying the many assets in the region highlighted in the Final Report of the PDI, and information provided by people who were in charge of the project, both the participation of the Londrina Marajó Group's entrepreneur, as the participation of the executive of the Ipiranga Group in Porto Alegre. Both participations became essential to define a strategic industrialization plan for Londrina. "The suggestion, on using similar procedure about a development aimed to restructure the city of Londrina, is based on previous experiences of how the restructuring of the two mentioned companies took place.

Choosing the city of Londrina as object of this study came from an analysis of its influences",The fact that Londrina is seen as an average city with about 450,000 inhabitants, the activities aimed to the provision of health and services. Mainly existing industries: textile and food; Existence of SERCOMTEL; The role played by CODEL; Having a good quality of life. The fact that the infrastructure offered is also outstanding, with the existence of shopping malls as highlights. The Coffee Stadium (Estádio do Café); the international autodrome of Londrina; the State University of Londrina - UEL; EMBRAPA (CNPSo) and IAPAR (Original document PDI - 97).

Thus, we made contact with then-mayor Eduardo Cheida, who began his mandate early in 1993 to present the proposal for implementing the PDI in the city of Londrina. Not only the mayor, but also other people and entities became involved soon after, such as CODEL represented by Mr. Abílio Medeiros, SERCOMTEL in the figure of Mr. Assad Janani, who at the time also assumed the position of deputy mayor, Mr. Alex Canziani who made up the City Council, Mr. Farage Khoury, representing ACIL, and finally, Mr. João Milanez as ADETEC's representative. The elaboration of the PDI took place during 1995 and 1996, with about 10 people, thus forming a Management Committee that met weekly. Luiz César Guedes, from Embrapa, who became the president of ADETEC later, was also invited to join the technical team [11].

After a survey and study, we formed a working group to obtain a consensus on the diagnosis of the city in terms of its capacity for industrial development. With that, the following points were achieved: Understanding the positive factors of the city that can be used to attract industries; Understanding the negative factors of the city that deserve attention to better contribute to the Industrialization Plan; Identification of critical points to be addressed (PDI-97). It is worth mentioning that all participants were part of associations, unions, councils, etc., always with a notorious and leadership role, promoting events that sought to raise awareness among the local population about the importance of technological development.

Interviewee P1-D: I think one of the central elements that facilitated this type of discussion, is the amount of innovation institutions that you have in Londrina. Embrapa, IAPAR, UEL, and now, several other universities, that can carry out studies, reflections and promote debate. At the same time, this asset that we have is also an obstacle for us to build this consensus and seek at least a definition of priority, so I would say that at some point we had a political space in the municipality, which allowed the people had this debate [...]. A criticism I would also make that made it difficult, even though UEL has recently engaged in the management municipality with more active participation, but historically UEL has distanced itself a lot from the processes of local and regional development. It is possible to have a broad discussion about this, to say whether it is the fault of UEL or if it is the fault of local entities, and it is difficult, but the fault is on both sides, the UEL will have an immense contribution to make, in the sense of provide studies, follow-ups, proposals, projects developed on multiple platforms, but this happened very vaguely and over time.

For the development process of the PDI we opened a public notice auctioning international consulting companies with a proposal to restructure the city. The winner of the event was the Andersen Consulting company, and the hiring took place by the City Hall and ACIL in 1994. Andersen Consulting had a team of five consultants, managed by a consultant from Bilbao, Spain, and supervised by another from Barcelona, Spain.

Recurring to the theory of institutional logics about the studies of organizations, we could observe that the first phase of the PDI corresponds to the habitualization one. In this first phase, the organization adopts a new structure in response to specific organizational problems, from the agricultural to industrial sector. In a second moment, there was objectification because it involved a degree of social consensus among Londrina entrepreneurs, that is, through the action of the champions of each project and the ability to reinterpret and mobilize resources.

Interviewee P1-A: Well, I was president of ACIL, the Commercial and Industrial Association of Londrina, where I was secretary-director, vice president and president. And, in my administration, the banner was exactly the industrialization of Londrina. Then, in 1995, a group of businesspersons decided to form a group to contribute to the industrial development of Londrina. And the first person they called was me. Exactly because of my industrialization banner. And then we participated in the PDI, which was a successful example, which was the Industrial Development Plan of Londrina, and I participated from the first preliminary meeting with five people, until the execution of the last two years as executive director.

Interviewee 2 P1-B: I have always had a prominent role and a certain leadership. I have always been very curious and concerned about Londrina, I was not born here, I was born in Guarulhos, but I am an honorary citizen, I received this for some works I did, including the PDI that I led. I also worked on another project, which was the project to modernize public management, it was a work done in Londrina that brought together the entire thinking community of the city, civil personality interacting with the government, and at the time of the PDI, Londrina was going through a very big crisis of self-esteem.

We also observed through these participations that there was a great awakening about the importance of teaching, research, experimentation, and extension projects, as all participants, in addition to having academic training, were part of the activities carried out in the period of development and implementation of the program as shown in the following fragments:

As its main objective, the PDI sought to "Determine the strategic actions that would make it possible to promote the Industrial Development of Londrina, both by enhancing the existing industrial base and also by attracting new investments and business initiatives". In order to achieve the proposed objectives, this study needed to obtain answers to some questions considered essential to guide the the study: What are the most attractive and suitable industries for Londrina? What is the situation of the local industry and what are the actions to strengthen it? What processes should be used to attract industries? What is Londrina's current situation and what are the recommended improvement actions? What mechanisms will make the process viable? [1].

From the answers to these questions, we elaborated the Industrial Development Model (MDI), and analyzed 26 industrial sectors considering two main factors: the Attractiveness and the Adequacy of the Urban Supply. From the selected data, the methodology of "grades" (High, Medium and Low) was used as a means of analysis.

For the Attractiveness Analysis, nine criteria were established: Sector Structure and Growth Perspectives; Added value; Job Generation Level; Complementarity with the Existing Industrial Base; Possibility of Substitution to Imports; Prestige for the City; Dynamism in Foreign Trade; Supporting Element in the Socio-Economic Structuring; and Technological Content. The Urban Supply is associated with the city's capacity to offer the necessary requirements to the sectors under analysis; moreover, the criteria considered for analysis refer to Labor Market; Access to Customers and Suppliers; Infrastructure and Productive Services; Communications; and Transport [11].

In this context, we identified the pharmaceutical-chemical, food, and electronics sectors as the most promising areas in the city. The pharmaco-chemical encompasses not only pharmaceutical products, but also hygiene & cleaning products; the food sector comprised biscuits, grains, and noble foods; and the electronics sector corresponds to home appliances, medical and hospital equipment and telecommunications.

Thus, from the identification of such sectors, some strategic premises also needed to be analyzed: Which factor should be privileged, attractiveness or adequacy of the urban offer? Should our efforts focus on sector diversification? What should be the investment to achieve what you want? Lastly, what is the size of the companies you are trying to attract? [1]).

In response to all these questions, the actions suggested to improve the urban supply were strengthening existing sectors, creating an image, attracting investments and creating a Local Development Agency. For this purpose, interviewee P1-A was hired, he/she was a member of Adetec at the time, enabling the arrival of Atlas, Dixie Toga, and many other large companies in the city. In 1997, the then new mayor Antônio Belinatti, elected for the period 1997 to 2000, and created an Executive Committee. However, the Committee was dissolved in 1999 due to political issues, leading to the impeachment by Mayor Belinatti [1].

Based on the literature and on interviews with a set of actors and entities from different segments that were included in the project during its implementation period, it is evident that together they produced and reproduced fundamentals of social life. Through powerful external forces that help determine how to make their experiences meaningful in the project institutionalization process as explained in the following fragments:

Interviewee P1-A: In the planning and execution of the PDI I have already said that more than 120 people actively participated, representing entities from almost all productive segments in the city. And, in the execution of the PDI, in 97, 98, when I was executive director, we managed to bring all these industries together, there was a citizens' council, and then the executive committee. I was on the executive committee. And there were more than fifty people, the most prominent in Londrina, participating. So, the participation was quite big. And in this effort to improve city administration management, we also formed a movement called the Competitive Londrina Movement, because for this work we had the support of the Competitive Brazil movement, which had done this work with the governments of the states of Minas, Pernambuco and others .

Interviewee P1-B: Wow, it was total, at that time, the mayor made a decree and created an executive group, I was the president. We worked on it for about two years, for it to be ready, how many night meetings, trips to São Paulo at Andersen Consulting. I used to take my private plane, because I am also a pilot, I stayed there until midnight, went to the hotel to sleep and returned to Londrina the next day.

Interviewee P1-C: Yes, I think that from some sectors yes, maybe it has not had the full, total support, because there is a visionary, and there is someone who has a little distrust, in addition to the issue of funding, because these actions are guys, they need to be financed. It is often necessary to have a contribution from private investment and Londrina does not have it and did not have the maturity for that. Today I don't know what the degree of maturity is, I think it might be a little better, because entrepreneurs have started to suffer the consequences of the lack of projects, of local and regional development.

To understand the institutionalization process, it is necessary to understand that this are habitual actions. It occurs from specific actors who share meanings linked to a certain type of behavior, so that they become usual [51]. The fragments demonstrate the legitimization of such actions since the actors assumed the responsibility of making information and knowledge accessible based on the relationship with each other. At this stage, there is also the normalization of new structures in the organization's policies and procedures, or a set of organizations that encounter the same or similar problems. These processes result in structures that can be classified as a pre-institutionalization stage.

This is because the actions of a certain socially constructed entity or agents became desirable and appropriate within a system of norms, values, and beliefs. This can be seen in narratives such as "Local and regional leaders, for example Tadeu, had a futuristic vision, he had a vision of what he believed would be very good for Londrina, and he took important characters with him". Therefore, it states how while a man builds and molds society, he is also influenced by it, building the interpretation that the individual makes of his reality.

[12] state that the effects of cognition are seen mainly through mimetic isomorphism, focusing on irrational behavior in response to cultural rationalization. That is, they are a response to the pressures of the institutional environment and are motivated by government acts, uncertainties, professionalization, and other cognitive and cultural aspects [27]. In this sense, from the perspective of the organizational field, it should consider the processes of mimetic, coercive, and normative isomorphism, where several and organizations interact by exchanging resources and information, directly impacting organizational characteristics that change to achieve greater compatibility with environmental characteristics.

Interviewee P1-A: There were technical meetings with the core of people involved in the project, who were, let's say, the thinking heads. These meetings took place most of the time at ADETEC, but sometimes we also had meetings at some entities or institutions involved.

Interviewee P1-B: We created a movement, of great discussion, we held several seminars, made publications, but unfortunately, this movement in the context of the city council, it ended up getting into political issues. And we know that always that if you enter this issue creates division, creates conflict, creates difficulty, and… finally, not being able to go forward. The meetings took place within Marajó or wherever possible. Sometimes also at the hotel on the lake, we did it where there was availability or according to the type of expertise that needed to be added, right.

Interviewee P1-C: There were always meetings between the "elite" to discuss the future of Londrina, but there was never really any involvement with all layers of society. These meetings were always in the institutions involved, according to the interests and availability of those involved.

Interviewee P1-D: So, there were frequent meetings, but certain difficulties and/or problems were beyond our power to resolve, mainly problems of a political nature.

Considering these aspects, the reflections on the strategic planning for the industrial development of the city marked the trajectory of the Industrial Development Plan of Londrina, with suggestions for the formulation of an industrial development policy. However, during the period of development and implementation of the project, not everything happened as planned for the success of the PDI. Crucial elements were obstacles to the project's permanence, such as: culture; lack of commitment and support from the general community; absence of public support in all its representative bodies; scarce sources of resources to guarantee the sustainability of the projects and the challenges of the 1996 political calendar. Although, as mentioned by all those interviewed, the political scenario was still the great demotivating factor, leading it to de-institutionalization.

Years later, in 2003, attempts were made to rescue the PDI in 2003, during the term of the Mayor Nedson Micheleti and, in 2014, during the term of the Mayor Alexandre Kireef, both attempts were unsuccessful. This is because, according to an interview given to Folha de Londrina in 2014 by Mr. Kentaro Tahahara (secretary of the Executive Committee of the PDI), the project, even though it was not institutionalized as expected, generated several results. Moreover, the project enabled the arrival of companies such as, Atlas, Dixie Toga (already mentioned), and Millennium, as the result of the merger of an Israeli company with an old company from Londrina, Herbitécnica [11].

As evidenced through the reports on the empirical experiences of the interviewees and ratified by [32] exogenous factors can influence/affect the balance and the existing institutional logic.

Interviewee P1-A: This deinstitutionalization you are talking about happens because there is no continuity in the work and everything. In other words, as you put it, it's missing the institutionalization of all of this as a recurrent practice in our daily lives and such. And then, once again, it is on top of the leadership. People

interested in participating in serious work, with purpose, with a vision of the future and all, for the benefit of the population and the community, we have interested people, intelligent people, prepared people and such. So, once again, as is the case in the political area, there is a lack of leadership in all sectors. In Brazil, in the political area, we do not see politicians with leadership, with the profile of a statesman who can really lead this Brazil along a better path. Unfortunately, each one pulling the embers for their sardines and such, it's barbaric. Lie from here, lie from there, and all. And this is not only in the public area, in government and such, but also in the private sector, in entities and such, this happens, right. So, again, it's a question of leadership. From the absence of better leadership in all sectors and such. The question is, how are we going to solve this? I do not know.

Interviewee P1-B: Some things, but due to corruption in the city hall, mayor removed from office and such, all the work went down the drain. We're watching it, just turn on the television, there's nothing but barbarity, there's only corruption, money in your underwear and I don't know what else. It's barbaric. If we do not improve the quality of public management, then all the efforts of institutions, productive entities and such, end up failing to achieve the result we need. It was something of extreme wealth that, for political reasons and issues of municipal mismanagement, it stopped... Because after it was done, he had to walk on his own legs, and then because of that mess of repeals, etc. got lost.

Interviewee P1-C: Due to our immediate culture, you have a project that doesn't work for ten years, due to the magnitude of the project, because it is continuous, it is dynamic, it goes through phases, and it finds its own way. […] so, people want very quick answers, if five passed, there was no answer, distrust starts, and when there is distrust you break, your relationships disappear, so people disappear, disappear, right, then you need them. Another question is whether the project cannot sustain itself either, just one person cannot sustain itself, but it takes a project to have results, so our lack of culture, for this type of project for the development of a city.

Interviewee P1-D: Discontinuity has several factors, but certainly when you have an institution that has a program and allocates resources, if you have resources you can work. I coordinated a program by IAPAR, a state program, study of agribusiness production chains. I had a resource and mobilized more than 100 professionals, in two and a half years of work, I managed to publish ten studies and books, so with relatively little resources it is possible to do a good job in certain programs and projects. But I believe that there is no conviction, from the leaders, of course there are always people who are in leadership positions, but here in Londrina, the leaders are very rooted in institutions, and often those who reach the position within an institution of an organization is not a leader, he holds a managerial position, of that organization, but there is no leadership. While other people who eventually have a leadership vision, have difficulty putting their ideas to work, as they do not hold a managerial position and sometimes don't even like to have a managerial position. We have the difficulty of making the ideas and projects that mobilize society permeate the social fabric, which is why we have bumps like these ideas that have already been led and pulled by these entities in the past, but far from having achieved broad acceptance in society. A development project to be defended and that would remain in time, over time these projects can even change naturally, but we must have a sense of direction, what does that mean? We don't have the sense of direction, what does Londrina want to be in 10, 20, 30 years from now? what core values do we have as a society? These questions we have difficulty answering, and each one answers in the way they think is right, and in that sense then, not that the diversity of opinions is bad, but this sense of direction we need to have.

The fragments described here show that during the 90's the process of regional technological development took place without much support from local governments. Consequently, it was also not known to the local community. After the organization of some Londrina entrepreneurs and the identification of assets in the city of Londrina, organized civil society started to demand actions, on the part of the Municipality and State that would support the technological development of the region.

Faced with this context, if we draw a panorama between the PDI and Institutional Theory, originated from the studies of [45], we can identify organizational transformations, permeated by control mechanisms and meaning systems that establish from common understandings and converging interpretations to institutional logic.

Thus, the institutional logics evidenced in the industrial development plan refer to local culture, which presents itself as a hindrance to Innovation. Once, according to the reports, individual interest outweighs the common interest, generating divergences of thoughts and goals. On the contrary, this interest would not be a critical element that occurred only in Londrina, as mentioned before. Hence, it should not be considered decisive for the process of change.

When multiple interests are involved, especially when it comes to government policies, the change process usually transcends the governance period, generates a lack of interest in the projects, giving strength to the deinstitutionalization process. This means that according to a greater or lesser degree of interest in issues related to technological development, there is a greater or less effective support. Another problem occurred, as reported by interviewee 1, "as is the case in the political area, there is a lack of leadership in all sectors". In the interviewee's perception, there is a lack of people interested in participating in serious work, with purpose, with a vision of the future for the benefit of the population and the community.

In the organizational sphere, knowledge of cultural schemes, in this case of interaction rituals, implies the capacity of the agency and of acting creatively in the control of social relations and within the scope of its powers of transformation. Thus, the next category aims to identify the agency power of each project's champions, that is, the ability to reinterpret and mobilize resources.

Interviewee P1-A: Very difficult question. But I, fundamentally, have always believed and believed in people, isn't it. Well-educated, well-educated, well-meaning people. With a culture of development, a culture of participation, a social conscience. Because today I think that the person must have this sensitivity and such, with the social aspect, with the human aspect, right. This relationship to the adversity of people and everything else, who are unable to perform convincingly and productively. So, I think this aspect, it's about the social conscience that you mentioned, right, it's very important and it's never been debated as much as it is now, right. With this issue of gender, this, that, and such. Race and all. There's been a lot of discussion, and I think that, exaggerations aside, both for one side and the other, I think we're going to stabilize at a point, like that, very good, of respect for people, respect for differences, diversities, and everything the most. And make it a force, under a very authentic leadership, very firm, with purpose, with a vision of the future to lead Brazil on a better path. We have everything. All all all. All that's missing is to train these very ill-accustomed people.

Interviewee P1-B: Unlike all the projects that already existed at the time, maybe because of the innovation for that time, because we thought differently in the past, city halls had a local development company there and they stayed there waiting for someone to knock on the door. We thought differently, after defining which companies we wanted, we did the opposite, we went around the world saying that Londrina had this urban infrastructure to offer, and we pointed out which ones would be missing, to attract that segment, right [...] People involved in the project with me, about 7 or 8 people, each of us got another 7 or 8 members and gathered about 30 people who multiplied to sell a dinner with a paid subscription, on the plateau. We held a kind of auction to raise funds for the project with 600 people participating in the event. That night we managed to raise 2 million and four hundred thousand reais, and then this program was born. But in the end, that Barbosa Neto was also hunted. So, the problem with Londrina is that it had 30 years of bad management, you know, that's it.

Interviewee P1-D: These Londrina projects are discussed at a very high level, of leadership, of entities with very little root and penetration in the layers, in other segments in the involvement of society, little, at least at the level that was worked, and maybe that's why they lost energy and they followed the path they followed, because the engagement of society as a whole was very small, and this shows that the entities are no different from many leaders in Londrina who believe they represent society. I said this in the press, I do not represent, because if I represented they would be involved and the processes would not have died, and far from having this dialogue with the city, I would say that most of these leaders, these entities, do not know the society of Londrina, in the sense of who would have the power and the capacity to make this reading more plural is the university, and no society that developed from technology, science, the university is outside, none. Look at these cases that I mentioned from Pato Branco, Santa Rita, from the school from the beginning until reaching the masters and doctoral courses, passing through all the ranches, it is a structure that permeates society at all levels. If you take the three cases I talked about, you'll see that it makes a big difference. Here in Londrina, unfortunately, in a more recent period, some of these universities that have been promoted more recently, because then someone can say no look there, they are promoting this, these are punctual things more associated with marketing than with a deeper change in processes. You don't need to go into detail, you just must put your vision up and analyze it, you'll notice, so much so that many of these processes no longer exist.

To be an agent one must be able to exercise some degree of control over the social relationships in which they are involved, implying the ability to transform those social relationships to some degree. However, as shown in some excerpts of the fragment above, there are internal and external factors that directly impact the champions' agency power, limiting their actions. This is because the human structures and instruments the champions' confer are loaded with power differences so that we are commonly catechized to accept the structure formed, inhibiting specific forms of agency. Agency arises from resource control, which means the innovative capacity to reinterpret or mobilize a series of resources in terms of others that constituted the matrix [46], that is, it involves a degree of social consensus between decision makers in the organization about the value of the structure.

[19] defines structures as rules and resources that imply the reproduction of social systems, not as restrictions on human agency but as possibilities. Thus, we can affirm that the historical, cultural, and personal variability of agents' orientations and the ways people understand their own relationship with the past, present, and future make a difference in their actions.

In fact, structures are the agents' thought history; cultures constitute intentions, implying the ability to work in creative and innovative ways [46]. Hence, agency power is directly related to the social context of the structure, there are structures in which agents have agency power and there are structures that do not, but they all move towards isomorphism, as discussed above.

IV. Conclusion

This research sought to analyze the institutional logic used in the preparation of regional technological development programs in Londrina / PR. Therefore, we carried out a bibliographical survey on the institutionalization process, based on the Neo-Institutional Theory. This type of research proved to be the most appropriate for the case, as it recognizes a subjective element in the process of analyzing the phenomenon we chose to study.

Thus, we sought to answer the following research question: What was the historical path of the municipality of Londrina regarding actions for technological development?

About the history of the city of Londrina, with regard to actions aimed at technological development, we observed that numerous actions that were carried out in order to foster the importance of technological development in the region. It was also possible to notice that during the institutionalization process there were some phases, according to the classification proposed by [50]: habitualization, objectification and sedimentation.

In the first phase, actions ranging from the promotion of technological development through articles, magazines, and television programs, to the organization of events that sought to make the local population aware of the importance of technological development through lectures, workshops and institutional events took place. To spread this idea, some local entrepreneurs and institutions played the role of propagators of the culture of innovation. This process contributed to the cultural maturation of technological assets in the public sector, private initiative, and academia from the 1990s until currently days.

In reference to the different institutional logics that permeated the technological development programs carried out in Londrina, we could analyze the first period. There, the lack of local development and the need for industrialization from the 60s onwards, after the various frosts and, in particular, of 1975, known as "Black Frost" since the end of coffee growing, which was the "propelling spring" of the local economy, it was necessary to discuss and define a new economic matrix.

This paper can contribute to the reflections of a local nature of innovation. From that, this study can show how the identification of the stages of the innovation system in the city of Londrina contributes to economic and political, as the activities generated and spread new technologies.

From the perspective of future research, it should be noted that the factors that hindered the institutionalization of projects were always of a political nature. Thus, even with time, the political issue is one that will always remain unknown in the future of the city; thus, the political component is subject to research and theoretical deepening. Likewise, institutional learning is another area that yearns for further studies, since collective learning, cooperation and innovative dynamics assume great importance in local arrangements due to their particularities.

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