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Adherence to governance patterns: How do institutional work and knowledge dissemination influence the institutionalization of Brazilian industrial clusters?

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Abstract

Purpose – This article examines how the institutional work of inducing agents and the dissemination of knowledge among induced immersed actors have influenced adherence to governance standards in Brazilian industrial clusters.

Theoretical framework – We use institutional theory to frame the relationships between embedded firms through regulatory, normative, and cultural-cognitive pillars and the view of field-level agents engaged in institutional work, who share knowledge to induce adherence to governance standards.

Design/methodology/approach – We adopted a mixed methods research design, examining 96 companies in three Brazilian industrial clusters. We used WABA analysis to test our model within and between clusters using one-way ANOVA tests, and we tested our hypotheses using correlations identified in t-tests between independent samples and multiple linear regression to build the model.

Findings – The findings reveal that institutional work affects the dissemination of knowledge at multiple levels, influencing companies' adherence to cluster governance standards. We show that less adherence to new governance standards can be explained by the lack of internalization of disseminated knowledge. The institutional structures that historically existed before the implementation of formal governance prevail over the new ones, since the knowledge disseminated

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in these clusters tends to maintain current economic and institutional conditions, with little support for the creation of new institutions.

Practical & social implications of research – Cognitive aspects of the internalization of explicit, effective, and institutional knowledge suggest that its dissemination influences firms' adherence to the industrial cluster's governance patterns.

Originality/value – Little attention has been paid to how knowledge dissemination and institutional work can lead to the creation of and adherence to industrial cluster governance standards; and the dissemination of knowledge is more effective when social relations are included in the analysis model.

Keywords: Institutional work, Knowledge dissemination, Industrial clusters, Governance patterns, Microfoundations of institutionalization.

1 Introduction

Traditional institutional approaches focus on the relationships between organizations and the organizational field in which they operate, suggesting that institutions govern organizational actions (DiMaggio & Powell, 1983; Meyer & Scott, 1992). However, through the institutional work perspective, management research has started to refocus on understanding how organizational actions affect institutions, and a vibrant academic community has emerged to identify the practices through which institutions are created, maintained, and transformed (Andersson & Gadolin, 2020; Lawrence & Suddaby, 2006). Although promising, research on institutional work has long neglected how social relations between organizational actors and institutional intermediaries (Mitchell et al., 2022) can function as triggering mechanisms for knowledge dissemination[1] during institutional adoption efforts (Jastram et al., 2023), especially when governance mechanisms need to be established (Kano et al., 2022; Wegner et al., 2022), as is the case with industrial clusters.

In this regard, although knowledge sharing is regarded as an effective tool for improving organizational performance within industrial clusters (Meher & Mishra, 2019; Saifi et al., 2018), management research still pays little attention to the impacts of normative, regulatory, and cognitive institutional structures (Scott, 2008) and the role of action in knowledge dissemination efforts in such contexts (Gerke et al., 2023). This is insufficient to understand the process involved when considering the governance mechanisms that are induced and adopted in emerging clusters (Forrer et al., 2022), which are defined as "a socioeconomic entity characterized by a social community of people and a population of economic agents localized in close proximity in a specific geographic region" (Morosini, 2004, p. 307).

Also, considering that neither the institutional work nor the industrial cluster literatures excel in explaining institutional work efforts that are a result of knowledge dissemination through the adherence to governance patterns (Antero et al., 2020; Cassiolato & Lastres, 2020; Putnam, 1993), we ask: *how does institutional work affect the conformation of disseminated knowledge and the institutionalization of management practices through adherence to governance patterns in industrial clusters*?

Governance patterns in industrial clusters, as reported by Amato Neto (2000), Albers (2005), Brenner and Mühlig (2013) and Monticelli et al. (2022), refer to the search for a balance between competition and cooperation through joint support in so-called "pre-competitive" areas where companies would find it difficult to operate separately. Some of the cooperation initiatives that cluster participants can develop are: 1) joint purchasing of inputs and services; 2) joint participation in fairs and exhibitions (national and international); 3) joint marketing activities, such as: branding, advertising, distribution channels and sales force; 4) sharing of facilities, such as manufacturing units and testing and certification laboratories; 5) carrying out joint services, such as market research and provision of information; 6) participation in export consortia; and 7) joint establishment of technical schools and research centers for workforce training and qualification. Thus, such patterns characterize actions and objectives worked on among actors immersed in the cluster, which can modify institutionalized practices among members participating in governance (Greenwood et al., 2002).

Thus, this article aims to understand how institutional work has affected knowledge dissemination and institutionalization through the adherence to governance patterns in Brazilian industrial clusters. To achieve our objective, we adopted a comparative mixed methods

research design (Timans et al., 2019) in three industrial clusters in the state of Paraná, Brazil (knitwear in Imbituva, furniture in Arapongas, and information technology in Londrina). Our results show that institutional work (creation and maintenance) affects the dissemination of knowledge at different levels during the cluster's adherence to induced governance patterns. Our findings contribute by showing that the dissemination and internalization of knowledge (explicit, effective, and institutional) is affected by the willingness of individual firms to achieve both competitiveness and legitimacy through their participation in industrial clusters.

This paper is organized as follows. First, we review the literature on institutional contexts, governance structures, and knowledge dissemination in industrial clusters to develop our hypotheses. Next, we detail our mixed methods approach, including qualitative exploratory research and a survey design to test the hypotheses. We then present our findings, followed by a discussion of the implications and conclusions.

2 Literature review and hypotheses

In this section, we present the main theoretical foundations adopted in the research related to the concept of institutions, institutional work, governance patterns in clusters and knowledge dissemination. From this literature review, we develop our hypotheses to be tested through our empirical analysis.

2.1 Institutional context and adherence to homogenized governance practices in clusters

The regulatory, normative, and cultural-cognitive institutional pillars support and explain the relationship between organizations and their environments (Scott, 2008) at multiple levels. The institutional context refers to the set of environmental elements of an institutional and technical nature that organizations and their actors are involved in. There is a tendency for organizations within a given population to imitate the behavior of their peers when they are subject to the same set of environmental conditions (Fayolle et al., 2016).

Boxenbaum and Jonsson (2017, p. 84), however, show that the organizational "field has increasingly become more heterogeneous with multiple - often mutually incompatible - institutional pressures that result in conflict for conformity." Thus, isomorphism is not completely homogeneous and will vary according to the characteristics of the field. This contrasts with DiMaggio and Powell's (1983) argument that organizations become homogeneous in the face of environmental pressures, which may result from both competitive and institutional demands (Beckert, 2010; Machado-da-Silva & Fonseca, 1996).

Moreover, "action is neither determined by structure nor fully autonomous from it" (Cardinale, 2018, p. 134). Thus, as recent research suggests (Monticelli et al., 2022), field-level sharing of action between organizations occurs through carriers (formal institutional agents), either to maintain existing institutions or to disrupt their patterns. In the case of industrial clusters in particular, existing research (e.g., Cassanego et al., 2019) suggests that the homogenization of institutionalized patterns often affects the implementation of and adherence to governance practices and patterns in the field. Thus, we hypothesize that:

H_1: Isomorphic pressures from the institutional environment reinforce the implementation of institutionalized governance practices by organizations immersed in industrial clusters.

Beyond the institutional environment, research suggests that the homogenization of organizational fields can also be influenced by factors residing in the technical environment (Meyer & Scott, 1992; Thompson, 1967). From an economic perspective, the technical environment is characterized by the competitive space, whose operational dynamics are triggered by the exchange of goods and services. In this context, organizations are evaluated based on the technically efficient processing of work (Machado-da-Silva & Fonseca, 1996). It consists of factors that fulfill the economic-functional dependencies of organizations, which will determine their position in the market and their potential for competition (DiMaggio & Powell, 1983). As the literature suggests that economic benefits can lead organizations to view participation in an industrial cluster positively (Erber, 2008; Spigel & Harrison, 2018), we argue that perceived economic benefits can increase the likelihood of adherence to its governance patterns and the formalization of its practices in their organizational activities (Wegner et al., 2022). We thus hypothesize that:

H_2: The economic benefits resulting from the technical environment induce greater adherence to governance patterns by firms embedded in industrial clusters.

As part of the technical environment of organizational fields, we argue that the pressure to

homogenize organizational practices (such as governance patterns) also results from competitive pressures (Beckert, 2010). At the sectoral level, countries and regions have strongly promoted the creation of industrial clusters as a means to improve sectoral competitiveness (Brenner & Mühlig, 2013; Ruffoni et al., 2022). As a result, isolated firms have become more receptive to the proposals of inducing agents for the creation of industrial clusters and have internalized externally imposed governance patterns (Cassanego et al., 2019; Monticelli et al., 2022) with the intention of expanding their access to resources, funding, and markets that result from increased sectoral competitiveness (Awad & Alnatsha, 2023). Thus, our hypothesis states that:

H_3: The drive to increase sectoral competitiveness leads to greater internalization of governance patterns by firms embedded in industrial clusters.

In the nexus between the institutional and technical environments where organizations operate, the literature also suggests that public policies (institutional environment) and the current market situation (technical environment) are also factors that influence firms' decisions to formally join an industrial cluster and formalize its governance patterns among the participating actors (Mackiewicz & Namyślak, 2021). In this regard, the market situation in terms of economic conditions and trends can be assessed through its scope, pattern-setting of products and services, growth rate, and the quantity of employment contracts to illustrate each industrial cluster to obtain an additional explanation of why it was institutionalized or not. Part of the argument to mark the initial period of the market situation is the use of public policy as a development tool to create and boost local industrial clusters (Antero et al., 2020; Jacometti et al., 2016). Thus:

H_4: Public policies and the market situation generate greater consonance for the implementation of governance patterns by firms embedded in industrial clusters.

2.2 Relational context and institutional work to create and maintain industrial clusters

An organizational field is defined as a collective of organizations that constitute an arena of recognition in institutional life, such as key suppliers, consumers, regulatory agencies, and others that produce similar products and services (DiMaggio & Powell, 1983). Within organizational fields, those actors involved in correlated sectoral activities and industrial products might be induced to create industrial clusters through government action (Antero et al., 2020; Cassiolato & Lastres, 2020; Monticelli et al., 2022). However, although industrial clusters have been extensively studied over time (e.g., Putnam, 1993), we still know little about how members of the field are induced to adopt institutionalized practices and disseminate institutionalized governance patterns and knowledge in industrial clusters over time.

Moreover, each cluster has local governance composed of representatives of entities (inducing actors) and firms (induced actors) that are part of the network (Monticelli et al., 2022). Governance patterns determine different modes of coordination and participation in the local decision-making processes of agents and activities, as well as the process of disseminating knowledge within industrial clusters (Instituto Paranaense de Desenvolvimento Econômico e Social, 2006). As research suggests, the attitudes of inducing actors are decisive for having the necessary conditions in an organizational field so that the institutionalization of new patterns becomes possible. In this regard, institutional microfoundations start with the adherence to new practices and patterns by the actors embedded in industrial clusters (Vo et al., 2016). Thus, we hypothesize that:

H_5: The attitudes of inducing actors in industrial clusters foster higher levels of adherence to governance patterns among firms embedded in industrial clusters.

Furthermore, industrial clusters are formed by a network of embedded actors - firms embedded in a web of social relations (Albers, 2005; Weber, 1978) formed between firms, funding agencies, inducing agents, and governments. In this context, increased social relations refer to the intensification of ties between actors embedded in the field (Granovetter, 2017), and as such they are a decisive factor in the adherence, internalization, and dissemination of governance patterns within a cluster (Scott et al., 2019). As previous literature suggests, "multiple connections lead to 'social capital' that facilitates adherence to governance rules, reduces market inefficiencies, and facilitates economic development" (Di Stefano et al., 2017, p. 273) of industrial clusters. Thus, given the importance of social relations to the formalization of industrial clusters, we hypothesize that:

H_6: Stronger social relations in industrial clusters lead embedded firms to adhere to governance patterns.

Power and dependency relationships among the actors involved arise from the differentiated positioning

of members in the network (Granovetter, 2017). In other words, network egos may channel more decision-making power and influence other members, while peripheral members may feel more dependent on access to resources and knowledge. A firm's behavior is also shaped by the behavior of other organizations that are considered exemplary (DiMaggio & Powell, 1983). According to Pfeffer and Salancik (1978), dependence can be on different types of resources or outcomes, such as technology, capital, and management knowledge. However, the literature suggests that the interdependencies among organizations in a field do not only refer to material resources or transactions, but also to key legitimacy resources that are important for organizational survival (DiMaggio, 1986). When certain firms decide to become part of an industrial cluster, they might feel threatened by asymmetric power and resource relations within the cluster (inducing or induced), which can motivate them to adhere to institutionalized governance patterns within a cluster. Therefore:

H_7: Power and dependency relationships perceived by firms are positively associated with adherence to governance patterns and the implementation of institutionalized practices in the industrial cluster.

We also argue that the process of adherence to governance patterns is dependent on the identification of embedded actors with widespread patterns that reflect the consonance or dissonance of these actors, due to some legitimate reason in the organizational field (Kostova, 1999). In this regard, if embedded actors identify themselves with the cluster governance patterns, accepting and implementing them, they will engage in institutional creation work (Andersson & Gadolin, 2020; Lawrence & Suddaby, 2006) to internalize the knowledge arising from these proposed concepts and practices and disseminate them within the industrial cluster. On the other hand, once adherence to new governance patterns is established, they will find ways to protect these patterns from change over time through institutional maintenance work (Andersson & Gadolin, 2020; Lawrence & Suddaby, 2006). Thus:

H_{8a}: The lower the adherence to new governance patterns, the higher the effect of the institutional maintenance work of current institutions on the knowledge disseminated within the cluster.

H_{8b}: The greater the adherence to new governance patterns, the higher the effect of the institutional creation work of institutions on the knowledge disseminated within the cluster.

To address hypotheses H_{8a} and H_{8b}, we essentially identify: what are the types of institutional work performed by firms embedded in industrial clusters for the implementation of governance patterns, and what are the types of knowledge disseminated within each cluster to internalize and disseminate governance practices?

2.3 Knowledge in organizations and microfoundations of institutionalization in clusters

In explaining knowledge, theories have privileged processes of creation and dissemination (Davenport & Prusak, 2000; Nonaka & Takeuchi, 1995) and transfer (Zander & Kogut, 1995; Di Stefano et al., 2017), without exploring the dynamics of institutionalization at the micro level. The knowledge-based vision emphasizes instrumental exploration, and is therefore easily established and reproduced within a given organizational context (Lanzara & Patriotta, 2007). Rather than being the result of knowledge conversion processes (Nonaka & Takeuchi, 1995), knowledge seems to emerge from debates and collective interaction.

Moreover, the functioning of everyday life requires that part of institutional knowledge remains silent about the things that are taken for granted. Thus, we define knowledge in organizations as the set of cognitions, skills, and accumulated experiences (Davenport & Prusak, 2000) that are transformed and developed through social relations (Weber, 1978). Therefore, knowledge is essentially (1) explicit and objective in concrete reality (Nonaka & Takeuchi, 1995); (2) effective and utilitarian, in the production of practical results (Kalberg, 1980); and (3) institutional, as accepted patterns of reference mediated through collective interaction in daily life and reproduced through habit (Lanzara & Patriotta, 2007). Thus, we hypothesize:

H_9: Existing institutions in the context of an industrial cluster generate a higher level of knowledge internalization by firms embedded in organizational fields.

Also, the adherence to knowledge configurations contributes to the institutionalization of patterns in each organizational field. Thus, the microfoundations of such institutionalization can be dimensioned based on the internalization of disseminated knowledge in industrial clusters (Keller, 2019). A high level of adherence facilitates the work of institutional creation (Lawrence & Suddaby, 2006), which increases the likelihood that knowledge will be disseminated and internalized by participating firms. In the same vein, once the cluster reaches more advanced

levels of development (Forrer et al., 2022), higher levels of adherence will increase the likelihood of internalization of the knowledge disseminated by inducing actors and leading firms in the cluster through institutional maintenance work, which leads to the hypothesis that:

H_{10}: The institutional creation and maintenance work carried out by immersed firms generate higher levels of knowledge internalization.

These last four hypotheses assume a greater probability of institutionalization of governance patterns by stimulating the implementation of pattern reinforcing actions that generate greater internalization and knowledge and their dissemination over time. Testing these hypotheses allows us to understand how the institutional work of immersed companies influences the dissemination of knowledge in the cluster and its intensity.

Institutional work thus induces organizational actors to persuade companies to accept innovative patterns of governance, understand and apply them to their realities, and modify them to gain legitimacy (Forrer et al., 2022; Lawrence & Suddaby, 2006). Embedded in their network of relationships (Granovetter, 2017), firms need to interact to obtain and share knowledge within the cluster. Thus:

H_{11}: Social relations generate higher levels of knowledge dissemination and adherence to governance patterns among embedded firms, thereby strengthening the coalition of inducing actors.

The pattern of events and relationships that define institutionalization involves patterns that are recognized by a few influential actors and then widely disseminated and accepted within the field (Meyer & Rowan, 1977; Zucker, 1987), thus initiating the internalization of knowledge. Therefore, we state that:

H_{12}: Knowledge internalization by embedded firms generates wider knowledge dissemination within the industrial cluster.

We argue that the institutional dissemination of patterns has the function of delimiting the boundaries of organizational fields. It is therefore the level at which processes of institutional change are triggered and the redefinition of limits of a given field can occur (Zietsma & Lawrence, 2010). We present the research model and the proposed hypotheses in Figure 1.

3 Methods

To test our hypotheses, we designed a two-stage mixed methods research (MMR) procedure (Timans et al., 2019). In the first stage, we divided the 22 clusters mapped in the state of Paraná according to Ipardes' (Instituto

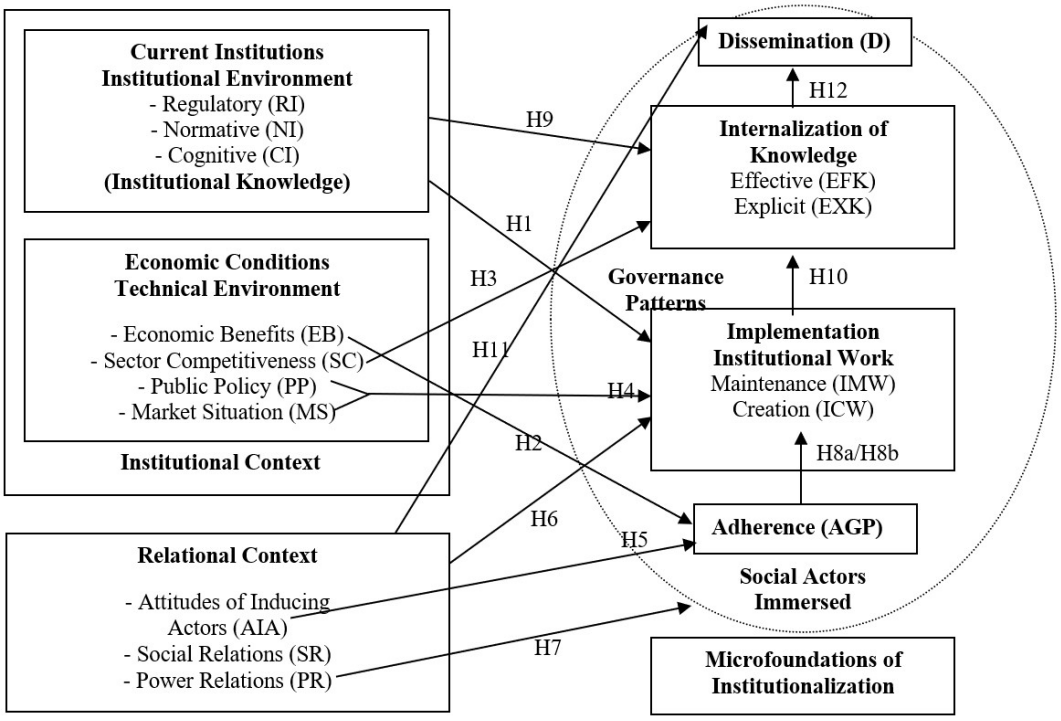

Figure 1. Model and hypotheses

Paranaense de Desenvolvimento Econômico e Social, 2006) classification of development stages (i. startup or embryo stage, ii. sectoral and regional development centers, iii. group of local development vectors, and iv. advanced vectors). After completing this stage, we applied convenience sampling based on geographic location by identifying at least one cluster in each development stage that was beyond the embryo or startup phase, since these clusters would not have an established record of governance patterns. In the second stage, we used our qualitative data as input to develop our instrument to collect quantitative data on each of the three clusters. Finally, we used our quantitative data to test our hypotheses and elaborate on our findings. We detail how we conducted each stage of the research below.

3.1 Stage 1: Qualitative data collection and exploratory analysis

After contacting the clusters in the designated areas (center-south and north of the state), we intentionally selected three clusters because they represented distinct stages of development: furniture in Arapongas, from the group of sectoral and regional development centers; knitwear in Imbituva, from the group of local development vectors; and information technology (IT) in Londrina, from the group of advanced vectors (Instituto Paranaense de Desenvolvimento Econômico e Social, 2006). After identifying the target clusters, we conducted 16 interviews (Appendix A). Semi-structured Interview Guide) with key actors from public and private entities involved in the governance of the clusters: 6 from Arapongas, 5 from Imbituva and 5 from Londrina (Appendix B). Interview Transcripts and Field Notes). We also conducted participant observation at industry fairs and events promoted by involving companies from the knitwear cluster in Imbituva and the furniture cluster in Arapongas, as well as several governance meetings in the IT cluster in Londrina (10 in total). We stopped collecting interview data when we reached the saturation point (Fusch & Ness, 2015).

In the qualitative stage, we focused on gauging the interest of cluster actors in institutionalizing governance patterns supported by inducing agents (e.g. Sebrae). These actors include governance companies, associations, governments, unions, universities, banks, and entities that can vary from one cluster to another, such as the Brazilian Support Service for Micro and Small Enterprises (Sebrae), the National Service for Industrial Learning (Senai), the Federation of Industries of the State of Paraná (Fiep), unions and associations. At the organizational level, there are the "embedded firms,"[2] representatives of the companies that accept or do not accept the actions and patterns implemented as a matter of course.

In the qualitative stage, we assessed the existence of governance patterns in the firms in each cluster. In this regard, we proceeded with the analysis of each case (cluster) and then with the comparison between cases to observe whether they were similar or contrasting. Thus, our research design followed the definitions of a holistic multiple case study (Yin, 2005). In mixed methods research, quantitative analysis can be more meaningful and have greater explanatory power when critically interpreted with the support of qualitative data (Cox & Hassard, 2005). Moreover, considering that "there is no quantification without qualification" and "there is no statistical analysis without interpretation" (Bauer & Gaskell, 2002, p. 24), we agree that by adopting a mixed methods research design we achieve a more holistic view of social research.

Furthermore, considering that case studies are recommended to investigate complex phenomena where the comparative character is justified (Yin, 2005), we assume that there is indeed a reproduced pattern in terms of cluster governance, even if it is not necessarily causal, but historical. When analyzing the adherence to governance patterns, our starting point was the inducing actors advocating for their institutionalization; thus, we assessed whether they were accepted by the firms in the clusters by observing whether they adhered to them, whether they were used in these clusters, and whether the resulting knowledge was internalized (whether the induced actors valued and believed in these governance patterns and found them important). In sum, the qualitative phase was conducted using the procedures presented in Table 1.

After collecting our data, we engaged in deductive qualitative data analysis using thematic content analysis (Braun & Clarke, 2021). In this process, we coded the raw data, identifying the themes that were categorized and grouping them into larger families representing the constructs we identified in the literature (Appendix C). Thematic Content Analysis of Atlas.ti). At this stage, we coded our data looking for evidence of the influence of the two levels of the institutional context on each cluster (technical and institutional) (Beckert, 2010; Scott, 2008), the relational embeddedness of their actors and agents (Granovetter, 2017; Weber, 1978), the formalization and reinforcement of governance patterns (Wegner et al.,

Table 1
Categorization of the Research Phases

Phase	Steps	Procedures
Qualitative	1) Selection of cases to be investigated;	- Data collection through document analysis and semi-structured interviews[3] with actors at the field level;
	2) Identification of the institutional and relational contexts of the clusters;	- Transcription of the 16 interviews;
	3) Empirical survey of construct dimensions;	- Thematic content analysis of data from primary and secondary sources using the Atlas.ti software (Atlas.ti, 2012);
	4) Construct reconciliation based on literature and data content analysis;	
	5) Development of the quantitative data collection instrument.	- Categorization and triangulation of the data obtained.
Quantitative	1) Validation of the quantitative questionnaire[4] through pre-testing;	- Application of 102 questionnaires in the three selected clusters with validation of 96;
	2) Construction of research hypotheses based on theory and qualitative data;	- Analysis of quantitative data through statistical tests using SPSS[5] software (SPSS, 2011);
	3) Collection of secondary quantitative data for contextual analysis;	- Correlation analysis between variables and hypothesis testing;
	4) Confirmation of the results of the quantitative analysis through triangulation with qualitative data and literature.	- Statistical analysis within and between each cluster (WABA).

2022), and the processes through which knowledge would flow between organizations in each cluster (Antero et al., 2020; Cassiolato & Lastres, 2020). We used the data and our exploratory analysis in stage 1 to inform the next step in our research design: hypothesis testing.

3.2 Stage 2: Quantitative data collection, treatment, and analysis

In this stage, we moved from the exploratory phase of our research design to explore the causal relationships between the variables in our study and test our hypotheses. As we were focusing on three clusters at different stages of development (maturity), we decided to use the survey research method (Hair et al., 2019; Malhotra, 2019) to collect quantitative data for our hypothesis testing.

In terms of sampling, with the formal support of the inducing agents of the clusters, we decided to survey the population of each cluster through Qualtrics, personal visits to the firms, events and governance meetings, and phone calls. The furniture cluster in the city of Arapongas had 163 firms (Sindicato das Indústrias de Móveis de Arapongas, 2012); the knitwear cluster in the city of Imbituva had 50 firms (Arranjo Produtivo Local de Malhas de Imbituva, 2012); and the IT cluster in the city of Londrina had 149 firms (Arranjo Produtivo Local de Tecnologia da Informação, 2013) (total n=362). Our survey resulted in a final sample of 102 completed structured questionnaires (n=102, or 28.2% of the total population), n=38 from the Arapongas cluster (23.3%), n=30 from the Imbituva cluster (60%), and n=34 from the Londrina cluster (22.8%). After eliminating the missing values and outliers, the Arapongas cluster had 33 valid responses, Imbituva 30 and Londrina, 33. As a result, our final sample consisted of 96 valid questionnaires (n=96). In the next sections, we explain in more detail the process we used to build the data collection instrument and our measurement model, as well as the data analysis techniques employed in our study (Appendix D). SPSS for Windows Database and Output).

3.2.1 *Instrument development, validation, and reliability tests*

To collect our survey data, we first had to create the measurement model. To do so, we followed the steps outlined by Hair et al. (2019) for developing and validating our measurement scale: i) we conducted a literature review to map the relevant constructs to our research and build our scale, ii) we conducted face validation through back-and-forth interviews with two experts (panel of specialists); iii) we conducted semantic validation (pilot tests) with four possible respondents, which was circulated back to the panel of specialists to attest to the validation process; and iv) we conducted statistical validation of the scale by doing the Cronbach's alpha test (see Table 2) to attest to the internal consistency and reliability of our measurement instrument. We followed Hair and colleagues' (2019) threshold of 0.60 to keep items in the scale, and only one item fell slightly below this value (0.577), which

Table 2
Internal consistency of the construct dimensions

Construct	Dimension	N. of Items	Cronbach's Alpha
Institutional Environment* (Scott, 2008)	Regulatory Institutions	3	0.577
	Normative Institutions	3	0.612
	Cognitive Institutions	3	0.701
Technical Environment (Beckert, 2010; Machado da Silva & Fonseca, 1996)	Economic Benefits	6	0.838
	Sector Competitiveness	8	0.958
	Public Policies	4	0.744
	Market Situation	13	0.845
Relational Context (Granovetter, 2017; Pfeffer & Salancik, 1978; Weber, 1978)	Attitudes of Inducing Actors	4	0.814
	Social Relations	7	0.909
	Power Relations	7	0.791
Microfoundations of Institutionalization (Davenport & Prusak, 2000; Kostova, 1999; Lawrence & Suddaby, 2006; Zander & Kogut, 1995)	Adherence to Governance Patterns	4	0.913
	Institutional Maintenance Work	13	0.893
	Institutional Creation Work	13	0.941
	Explicit Knowledge	4	0.843
	Effective Knowledge	6	0.913
	Dissemination	6	0.945

***Note:** The Cronbach's alpha increases to 0.851 when the three dimensions that make up the institutional environment construct are grouped together.

we decided to keep given its relevance to the construct being measured.

As a result, we developed a five-point semantic differential scale (for importance) and a seven-point Likert scale (for agreement) (Hair et al., 2019; Malhotra, 2019) to collect the survey data (Appendix E, Structured Questionnaire). This distinction proved to be appropriate after pre-testing and assessing the "reliability of the scales[3]." By allowing for parametric analyses, this decision helped to increase the power of statistical tests and reduce the probability of type II errors (Agresti & Finlay, 2017). Other factors that influenced the power of statistical tests were the sample size, the difference in group size, and the level of significance (p-value). Considering our sample size of valid questionnaires (n=96) and that our sample did not have significant differences in group sizes between clusters, parametric analyses could be conducted with a reduced effect size.

3.2.2 *Analytical approach*

We performed statistical tests on our survey data across the clusters (Brewer & Hunter, 2006) to assess the extent to which there was agreement on the variables in each cluster. The embedded firms rated 103 elements of the variables by agreeing or disagreeing with the statements in the questionnaire. They rated the existing institutions and two variables of the technical environment (PP and SM) according to their relevance to their contexts. We then adopted Dansereau and Yammarino's (2000) within and between analyses (WABA) to test our model across clusters. We assessed the internal consistency of the variables and performed the analysis between the clusters (comparison of means and variances) using one-way analysis of variance (ANOVA) tests.

We also performed a correlation analysis between the variables, as shown in Table 3, to determine the extent to which there is an influence relationship between them and where causal relationships are more likely. To do this, we used Pearson's coefficient analysis. Thus, we tested our hypotheses using the correlation t-test for independent samples. In addition, we used multiple linear regression to build the model of the relationship between institutional work (IW), disseminated knowledge (DK), and social relations (SR) in each cluster and overall.

To analyze the consonance between different internal groups in each cluster, we used non-parametric statistics to test whether subgroups with N<30 show significant differences among themselves. For two different groups, we used the Mann-Whitney U test for differences between firms that participate in governance and those that do not. For more than two groups, as in the case of firm size, we use the Kruskal-Wallis test as a non-parametric alternative (Agresti & Finlay, 2017). A comparative analysis between clusters allowed us to identify common patterns among

Table 3
Descriptive statistics and correlations

Variable	μ	σ	Institutional Environment			Technical Environment				Relational Context			Microfoundations of Institutionalization				
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. CI**	3.94	0.29	--														
2. NI**	4.09	0.26	.61*	--													
3. RI**	4.14	0.25	.65*	.74*	--												
4. EB	4.45	1.20	.03	.07	.21*	--											
5. SC	4.30	1.32	.10	.11	.27*	.88*	--										
6. PP**	3.93	0.33	.34*	.27*	.31*	.05	.01	--									
7. MS**	3.67	0.46	.40*	.43*	.42*	.02	.08	.41*	--								
8. AIA	4.81	1.01	-.00	.09	.23*	.79*	.75*	.02	.01	--							
9. SR	4.62	1.36	.02	.09	.23*	.92	.92*	.01	-.04	.84*	--						
10. PR	4.59	1.01	.07	.17	.30*	.69*	.67*	-.10	.03	.68*	.75*	--					
11. AGP	4.64	2.26	.05	.12	.22*	.84*	.81*	-.06	-.02	.77*	.86*	.71*	--				
12. CIW	4.41	1.67	.01	.11	.21*	.82*	.90*	-.07	-.02	.76*	.89*	.69*	.87*	--			
13. MIW	4.27	1.58	-.04	.08	.20*	.73*	.82*	-.12	.02	.69*	.81*	.74*	.82*	.89*	--		
14. EXK	4.47	1.93	-.01	.04	.22*	.84*	.84*	-.06	-.07	.80*	.87*	.77*	.86*	.87*	.84*	--	
15. EFK	4.67	1.97	.03	.09	.24*	.93*	.91*	-.04	.00	.79*	.95*	.77*	.89*	.90*	.84*	.89*	--
16. D	4.60	2.19	.01	.11	.26*	.80*	.76*	-.10	-.11	.75*	.85*	.82*	.89*	.84*	.84*	.89*	.87*

Note: N = 96; *p<0.05; level (two-tailed test); **the 5-point semantic differential scale was used, while the 7-point Likert scale was used for the others.

them, the local specificities, and the institutionalization process of each one.

4 Findings

Our findings reveal that the institutional work of embedded actors can shape the dissemination of knowledge in industrial clusters. Therefore, we have advanced the knowledge about how the institutionalization of governance patterns in industrial clusters occurs according to their contexts.

4.1 Comparison between cluster contexts

When comparing the mean importance of existing institutions in the environment, we found that they ranged from 3.8 to 4.2, indicating that firms perceive the existing regulatory, normative, and cognitive institutional environment as very important. Organizations rely on institutions to enhance their legitimacy and prospects for survival, regardless of the immediate effectiveness of the practices proposed by these institutions (Meyer & Rowan, 1977).

We identified the institutions that were enforced in each cluster before the creation of governance mechanisms. Although the clusters were from different sectors, we found similar institutional patterns when comparing them. While formalized companies predominate in Arapongas, in Imbituva we still find a lot of outsourced production facilities. In Londrina, many startups are not formalized in incubators. Thus, regulatory institutional pressure is more intense in the latter two clusters.

Regarding normative institutions, we found a pattern in all clusters related to business ethics, associationism, and pattern setting. Regarding cognitive institutions, we observed that the patterns are technological development, entrepreneurial behavior, and professional qualification. H_1 was confirmed only in Londrina, with a medium correlation, indicating that the governance in this cluster is institutionalized, which was not observed in Arapongas and Imbituva (Table 4). The same occurred with H_9, indicating that, as predicted by Scott (2008), both the maintenance of existing institutions and the institutionalization of new patterns emerge from the practices of actors defined at the micro level.

The measurement model of the variables of the technical environment used two scales: one to assess the consonance in terms of economic benefits (EB) and sector competitiveness (SC), and another to assess the importance of public policies (PP) and market situation (MS). We found a significant difference between the consonances of the Imbituva and Londrina clusters compared to that of Arapongas, both in terms of economic benefits and sector competitiveness (see Table 5). Levene's test of homogeneity of variances shows a p-value<0.05 in both variables, indicating that they are different with a significant F-value. The main differences between at least two groups were significant. According to the Games-Howell test, which indicates when the variances

Table 4
Result of hypothesis tests with Pearson's coefficients

Hypothesis	Arapongas	Imbituva	Londrina
H1	Rejected	Rejected	Accepted
	0.108	0.060	0.416
H2	Accepted	Accepted	Accepted
	0.740	0.604	0.730
H3	Accepted	Accepted	Accepted
	0.899	0.808	0.807
H4	Rejected	Rejected	Rejected
	-0.176	-0.028	0.265
H5	Accepted	Accepted	Accepted
	0.684	0.649	0.594
H6	Accepted	Accepted	Accepted
	0.864	0.851	0.648
H7	Accept	Accept	Accept
	0.765	0.585	0.389
H8a	Accepted	Rejected	Rejected
	-	-	-
H8b	Rejected	Rejected	Accepted
	-	-	-
H9	Rejected	Rejected	Accepted
	0.043	0.143	0.529
H10	Accepted	Accepted	Accepted
	0.942	0.794	0.675
H11	Accepted	Accepted	Accepted
	0.825	0.618	0.609
H12	Accepted	Accepted	Accepted
	0.917	0.742	0.659

Note: Hypotheses were tested based on statistical significance (p<0.05) and Pearson's correlation coefficient to identify the influence relationship between the related variables in the clusters, except for H_{8a} and H_{8b}, which were tested based on the analysis of regression equations of the clusters.

are different, it was possible to identify that there was a difference between the Imbituva and Londrina clusters compared to that of Arapongas.

There is evidence that this happens because the economic benefits obtained by the cluster in Arapongas did not reach every company, especially because the Arapongas cluster is much larger compared to that of Imbituva, where the benefits reach practically all the companies. In Londrina, on the other hand, more companies are involved and the consonance is greater. As for competitiveness, in Arapongas the companies disagreed that the cluster acted to improve competitiveness, while in the other two clusters the companies agreed that this was indeed the case. When testing H_2, we accept it in all three clusters, since the inducing actors reveal that the idea of obtaining economic advantages from the implementation of governance patterns in the clusters was always present (Erber, 2008). We also accept H_3 in all three clusters, confirming the assumption that institutional pressure (Beckert, 2010) increases the likelihood of internalizing the knowledge and patterns that underlie such results.

Although we found differences when comparing the technical environments of the three clusters, in the evaluation of the firms, there were no significant differences regarding the importance of public policies (the mean is 4.0). Regarding the market situation (MS), there was a significant difference between the mean of the Imbituva and Londrina clusters (see Table 5). The Tukey test was used to analyze equal variances. Thus, we found that there was a significant difference in the mean between Imbituva and Londrina, but not when compared to

Table 5
Comparison between the means (μ) and standard deviations (σ) of importance* and consonance of variables of institutional and relational contexts

Analytical Categories	Variable	Clusters		
		Arapongas	Imbituva	Londrina
Institutional Environment	CI, NI, RI*	4.08±0.51a	4.07±0.47a	4.03±0.58a
Technical Environment	EB	3.42±1.21B	4.89±0.61A	5.08±0.90A
	SC	3.19±1.36B	5.02±0.74A	4.79±1.04A
	PP*	4.00±0.75a	3.92±0.66a	3.88±0.72a
	MS*	3.72±0.48ab	3.89±0.56a	3.42±0.57b
Relational Context	AIA	4.03±1.01c	4.94±0.82b	5.53±0.77a
	SR	3.44±1.18B	5.07±0.64A	5.43±0.81A
	PR	3.78±0.95b	4.96±0.81a	5.18±0.81a

Note: Different lowercase letters on the same line indicate p<0.05 between means in Tukey test and different uppercase letters on the same line indicate p<0.05 between means in Games-Howell test.

Arapongas. The firms in the IT cluster (Londrina) considered the situation of the market to be of medium importance, while the firms in the knitwear (Imbituva) and furniture (Arapongas) clusters considered it to be of greater importance.

In addition, we rejected H_4 in all three clusters. Despite the high degree of importance attributed by the clusters to public policies and the market situation, these findings do not influence the implementation of governance patterns, as we had predicted in hypotheses H_6 and H_7, respectively.

A possible explanation for the actors facing different economic conditions is the internalization of taken-for-granted patterns. This finding confirms the phenomenon of isomorphism (DiMaggio & Powell, 1983), that is, the institutional and technical pressures on the firms in the Arapongas and Imbituva clusters led them to accept the current institutions and economic conditions. In Londrina, however, there is also an appreciation of environmental conditions, but this is due to the proactivity of the actors in articulating their desire to change these conditions. Such pressure can both constrain and enable action at the organizational level (Cardinale, 2018), allowing the setting of new governance patterns.

As homogeneity predominates in different fields, the intense normative and regulatory effects inhibit the ability of peripheral actors to act. We evaluated whether the organizational effect at the inter-organizational level is so intense that action is determined from the outside in, escaping the organization's managerial control, in an almost sectoral dynamic; and the extent to which companies' actions in a cluster are motivated more by field guidelines or the proactivity of embedded firms. Table 5 shows the means of each contextual variable in the three clusters and where significant differences occurred.

Table 5 shows that there was a significant difference between the consonances of the clusters of Imbituva and Londrina compared to Arapongas in all variables. There was also a significant difference between Imbituva and Londrina regarding the attitudes of inducing actors, showing that the consonance between the companies in Londrina was close to much agreement, demonstrating that the performance of the entities was essential to prepare companies to adhere to governance patterns. In the Imbituva cluster, there was little agreement, while in Arapongas there was neither agreement nor disagreement. Levene's test for homogeneity of variances showed p-value<0.05 for the variable social relations (SR) and p-value>0.05 for attitudes of inducing actors (AIA) and power relations (PR), with a significant F-value. We performed the Games-Howell test for the former and the Tukey test for the latter two, which confirmed the significant difference between the means.

We accept H_5 in all clusters, mainly because external entities were mobilized to create governance. The attitudes and mutual trust in a coalition of inducing actors were fundamental for the adherence to new patterns (Kostova, 1999), as they had control over the resources necessary to carry out the process. Social relations are more developed in Londrina, generating greater cooperation than in the other two clusters. In Imbituva, although there is not much cooperation, there is a lot of interaction due to the small number of participating companies and the physical proximity, which is not the case in Arapongas. In Londrina, where the level of cooperation is greater, the degree of cooperation determines the achievement of better economic benefits. This implies that it is not possible to obtain more economic advantages simply by being part of a cluster (Thompson, 1967).

The advantages are limited to logistical issues guaranteed by proximity, generating savings for the industrial cluster. To expand the advantages, it is necessary to cooperate. However, actors are not sure that cooperation will result in better economic returns over time. We found that there is a probability of influence between cooperation and economic returns. We accept H_6 in all three clusters, confirming that social relations are a reference in the realization of actions by social actors (Weber, 1978). The fact that cooperation is more developed in Londrina confirms the results of Albers (2005) that a probable consequence of the growth of social relations is the appearance of cooperation and the increase of trust.

Regarding power relations, there were no major changes after the creation of the clusters in Arapongas and Imbituva, as the power structure was maintained and the control over access to resources remained in the hands of Sima and Imbitumalhas, respectively. In Londrina, however, there was a transition in which the cluster itself built a new power structure, expanding its influence over time. We also accept H_7 in all three clusters because our data show that firms model their behavior on exemplary peers (DiMaggio & Powell, 1983), legitimizing themselves in the field and granting access to resources (DiMaggio 1986; Pfeffer & Salancik, 1978).

We found that institutional work involves a notion of power, as we observe in all three clusters pressure from

actors at the field level to accept governance patterns and to determine who is responsible for the new pattern. It is plausible to assume a relationship of dissonance due to the very concept of institutional work, which we observe in the clusters when applying non-parametric tests between firms that participate in governance and those that do not. Consensus often arises from the need to follow a trend so as not to be excluded from the cluster for lack of agreement with these patterns.

This situation confirms the assumptions of Olson (2015). When the cluster has many firms, as in the case of Arapongas, collective action is less effective, and this was observed with greater intensity. On the other hand, in Imbituva, which is a smaller cluster, the firms could best perceive the collective benefits of cluster governance, even though the trust relationships are not ideal. In Londrina, the small group that leads the cluster is able to disseminate results in the field, but there is dissatisfaction among companies that do not participate.

4.2 Evaluation of institutional microfoundations

From the comparative analysis of H_{8a} and H_{8b}, we understand how the level of adherence to governance patterns and the way they are understood moderates the effect of institutional creation and maintenance work on the disseminated knowledge in each cluster. In Table 6, we show the multiple linear regression equations between disseminated knowledge (DK) and institutional work (IW), with the weights of each type of institutional work on knowledge in the clusters studied.

We accept H_{8a} only in Arapongas because the adherence to governance patterns was lower, given the emphasis on maintaining existing institutions and economic conditions. We accept H_{8b} only in Londrina because the adherence to governance patterns was higher given the effect of the institutional work created in the field, since such actions are becoming institutionalized and modifying the existing institutions and the economic conditions that existed before the cluster. In Imbituva, we reject both H8a and H8b, because although the adherence to governance patterns is higher among firms, it is the effect of institutional maintenance work that prevails over disseminated knowledge in the field, and not that of creation. This indicates a dissonance that new governance patterns are not understood as prescribed in this cluster.

The findings regarding H_{8a} and H_{8b} are confirmed by the results of the regression analysis of DK in the three clusters. The adjusted R^2 column in Table 6, which measures how much of the variance of the dependent variable is explained by the model, is above 50% in all clusters, which is considered excellent according to the literature (Agresti & Finlay, 2017). They characterize the specificities of each cluster, as shown by the correlations in Table 3. Then, we started to validate the institutional microfoundations in the clusters by testing H_{10}, H_{11} and H_{12}.

We accept H_{10} in all three clusters with high correlations, indicating that institutional work disseminates knowledge in the clusters as we hypothesized. We also accept H_{11} in all three clusters, confirming that the pattern of events and relationships that define institutionalization involves institutional work that is recognized by a few influential actors (Olson 2015), widely disseminated, and accepted in the organizational field (Meyer & Rowan, 1977; Zucker, 1987).

The implementation of institutional creation work, when accepted in the field, initiates a process of internalization of knowledge by the immersed firms because actors are encouraged to act according to the expectations of the other firms in the cluster (Weber, 1978). By adding the variable social relations (SR) to the regression model, its explanatory power increased to

Table 6
Regression equations: DK, ICW, and IMW

Clusters	Regression Equations	Adjusted R2
Furniture from Arapongas	$DK = -0.608 + 0.751IMW + 0.425ICW$	0.882
Knitwear from Imbituva	$DK = 1.726 + 0.663IMW$	0.597
IT from Londrina	$DK = 1.446 + 0.749ICW$	0.509
General for 3 Clusters	$DK = 0.308IMW + 0.771ICW$	0.837

Note: High correlation of the general model with Pearson's coefficient=0.913 without multicollinearity of independent variables with tolerance=0.209 and VIF value=4.776, as recommended by Hair et al. (2019).

more than 68% in the three clusters, as shown in Table 7, indicating that disseminated knowledge is expanded when social relations are well developed in an industrial cluster (Hanssen-Bauer & Snow, 1996; Patriotta, 2003), reinforcing the interpretation of the hypotheses tests of H_{8a} and H_{8b}. Table 7 also shows that the consonance regarding social relations is high and that the effect of institutional creation and maintenance work on the dissemination of knowledge is amplified in industrial clusters.

We found that in clusters, more complex institutional work, and therefore less observed or with low consonance, requires a higher level of development of social relations, while less complex actions, and therefore more frequent and with high consonance, do not require as much development of social relations.

We also accept H_{12} in the three clusters, confirming the validity of the learning cycle (Hanssen-Bauer & Snow, 1996). With this, we validate the microfoundations of the institutionalization process in all three clusters, proving its effectiveness, just as we show in the analysis of the relational context. Therefore, both the institutional creation and the institutional maintenance work led to knowledge dissemination in the clusters studied, because regardless of the level of adherence to governance patterns, knowledge was disseminated by the actors embedded in the field.

Table 8 shows the significant differences when comparing the institutional microfoundations of Arapongas with those of Imbituva and Londrina, with a p-value<0.05 for all variables. However, we did not find any significant difference between Imbituva and Londrina. Table 8 also shows the means of consonance of the institutional microfoundations variables for the clusters.

We grouped the eight variables and performed a one-way ANOVA test to determine whether there is a difference in consonance for institutional microfoundations between more than two groups. Levene's test for homogeneity of variances showed a p-value<0.05. As the F-value is significant, the means also show significant differences between at least two groups. The greater variance of consonance in Arapongas indicates a greater disparity of opinions between embedded actors, suggesting the formation of distinct groups.

Table 7
Regression equations: DK, ICW, IMW, and SR

Clusters	Regression Equations	Adjusted R2
Furniture from Arapongas	$DK = -0.634 + 0.582IMW + 0.460SR$	0.935
Knitwear from Imbituva	$DK = 0.506IMW + 0.682SR$	0.768
IT from Londrina	$DK = 0.320ICW + 0.512SR$	0.689
General for 3 Clusters	$DK = 0.269IMW + 0.196ICW + 0.604SR$	0.914

Note: High correlation of the general model with Pearson's coefficient=0.956 without multicollinearity of the independent variables, with tolerance=0.165 and VIF value=6.075, as recommended by Hair et al. (2019).

Table 8
Comparison between means (μ) and standard deviations (σ) of consonance for variables of institutionalization microfoundations

Analytical Category	Variable	Clusters		
		Arapongas	Imbituva	Londrina
Microfoundations of Institutionalization	Adherence to Governance Patterns	3.15±1.38B	5.27±0.80A	5.51±0.77A
	Institutional Maintenance Work	3.41±0.94B	4.89±0.73A	4.51±0.59A
	Institutional Creation Work	3.36±1.09B	4.94±0.67A	4.93±0.66A
	Implementation via IW	3.38±0.99B	4.92±0.67A	4.72±0.56A
	Explicit Knowledge	3.36±1.24B	4.87±0.95A	5.19±0.78A
	Effective Knowledge	3.38±1.23B	5.27±0.59A	5.35±0.74A
	Internalization of Knowledge	3.37±1.21B	5.06±0.72A	5.27±0.69A
	Dissemination	3.33±1.45B	5.01±0.95A	5.46±0.79A

Note: Different capital letters on the same line indicate p<0.05 between the means in the Games-Howell test.

In Londrina, adherence to governance patterns was highly consonant, and companies that are not part of the governance know what a cluster is, but they are indifferent to it. In Imbituva, adherence was high, but the new governance patterns were neither understood nor implemented as prescribed by the embedded actors (mean close to low agreement). Institutions that already existed in the contexts of the cluster were maintained.

In Arapongas, new governance patterns were accepted only by firms that were part of the governance, and most companies in the cluster did not know what a cluster was (mean close to low disagreement). In all three clusters, we found that knowledge dissemination occurs, but this knowledge is shaped by the type of institutional creation or maintenance work that predominates. The emphasis on institutional regulatory work reinforces the dissemination of knowledge necessary to preserve the structure of rules and patterns established in the institutional and relational contexts. With governance, the insertion of institutional cognitive creation work reinforces the rules and the already institutionalized knowledge has increased.

In Imbituva, the emphasis on cognitive institutional creation work is on aggregating knowledge and dealing with new technologies. However, the institutional work of normative and regulatory maintenance reinforces past patterns and limits access to different types of knowledge.

The analysis of the Arapongas and Imbituva clusters suggests that the institutional pressures in their fields are so strong that the knowledge disseminated in the embedded companies is a mere reproduction of a pre-determined script, given the preservation of the institutions observed before and after the formalization of governance. Institutional maintenance work therefore involves supporting, repairing, or recreating social mechanisms that ensure compliance with established patterns. Institutions are maintained by submitting to current rules, norms, and beliefs (Lawrence & Suddaby, 2006). In Londrina, the emphasis on normative and regulatory institutional creation work lays the groundwork for supporting new institutions by creating networks for the exchange of different types of knowledge. As Lawrence and Suddaby (2006) predict, when this type of work is developed, it usually entails the construction of a new set of institutions and, therefore, the replacement of the previously existing structure, which is characteristic of an incremental institutional change (Greenwood & Hinings, 1996).

5 Conclusion

Our research showed that the cognitive aspects of the internalization of knowledge suggest that its dissemination occurs in a multifaceted context (Fayolle et al., 2016; Kostova & Roth, 2002) in which the actors are embedded (Granovetter, 2017), and that the success of knowledge dissemination is affected by all three environments: institutional, economic, and relational. We show that knowledge dissemination is much more effective when social relations are included in the model along with institutional work.

Although local specificities also influenced the implementation of these patterns (Greenwood et al., 2002), we observed a relative degree of institutionalization of the governance patterns to which firms adhered in all three clusters. We argue that the lower level of institutionalization can be explained by the lack of internalization of disseminated knowledge, as predicted by Kostova (1999). What prevails are the institutional structures that were historically in place before the implementation of a formal governance structure. We show that the practices and knowledge disseminated in these clusters are aimed at maintaining current economic conditions and institutions rather than creating new ones.

In Londrina, we show that governance patterns are going through the process of institutionalization (Greenwood et al., 2002). In the creation of governance, there were initial shocks that disrupted some existing institutions, such as the existing power structure and the complacency of business managers. With the legitimization of the model among entrepreneurs, they took over the management of the process and began to introduce new governance practices and progressed in defining increasingly complex actions.

In Arapongas, the feudal culture identified makes it difficult to carry out many of the cooperative actions. The existing medium and large companies have isolated themselves, and some SMEs have organized themselves into spin-off small groups that treat the cluster only as part of their relational group. Sima's performance defines the norms and rules in force in the sector. In Imbituva, the difficulty lies in the existence of strong institutional and economic pressures that, together with the lack of institutional infrastructure, inhibit the results of companies and cooperation. Imbitumalhas is more influential than the cluster itself and is the entity that sets the rules in the knitwear sector.

Regarding the theoretical contributions of this study, our findings add to the microfoundations of institutions in the context of industrial clusters by showing that the institutionalization mechanisms we observed in these clusters take place in a bottom-up logic (Greenwood et al., 2002; Scott, 2008), both to modify and to maintain current institutions. The empirical cases illustrate this phenomenon, and the different levels of adherence to governance patterns show that the type of institutional work (Lawrence & Suddaby, 2006) of the embedded actors (Granovetter, 2017) in each cluster explains why this occurs, taking into account the influence of broader institutional and relational contexts. Our study also provides insights for practitioners. Leaders of industrial associations and public policymakers can use our findings to understand what factors can contribute to a successful cluster induction. Moreover, inducing agents can build on our model to identify which factors (economic, social, or relational) are more salient in a particular case to ensure adherence to good governance patterns.

We also note that this study is not free from limitations. It is important to emphasize that all scientific research is reductionist, as reality is much more complex than concepts can measure. Although we sought to address this issue by adopting a mixed methods research design, every choice we made to delimit our theoretical framework also limits the broad understanding of the phenomenon and does not allow the generalization of the conclusions obtained to other clusters. However, as Yin (2005) states, case studies are based on analytical and not statistical generalizations, that is, the researcher attempts to generalize a particular set of results to a broader theory. In this regard, we acknowledge that a broader study including other clusters in the region could improve the robustness of our data.

Our study opens up several avenues for future research. For example, future studies could further investigate how these governance patterns being disseminated by inducing actors became institutionalized and taken for granted in the first place. Further research could also explore how our knowledge dissemination model would behave in service clusters (e.g., tourism clusters). Finally, further studies could build on our findings to analyze and identify which public policies are most effective in promoting the growth of clusters and how the local community can intervene in this process in order to stimulate or inhibit local economic and social development. A more comprehensive overview of this research can be found in the thesis, which is available in Appendix F.

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Notes

[1] In this study, at the suggestion of one of the reviewers, the term "knowledge dissemination/sharing" was adopted as it denotes knowledge that is transmitted in a deliberate and planned manner by the governance of an industrial cluster, in order to differentiate it from the simple diffusion of knowledge carried out in a random and informal way.

[2] 84% of the companies in the sample of clusters studied are micro (up to 19 people) and small companies (up to 49 people). The entrepreneur can represent the organizational level.

[3] We determine the internal consistency of the variables above or close to 0.6 using Cronbach's Alpha.

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Supplementary Material

Appendix A. Semi-structured Interview Guide.

APPENDIX_B_Coded_Structured_Questionnaire.

APPENDIX_C_Doctoral_Thesis_Marcio_Jacometti.

APPENDIX_D_Interview_Transcripts.

APPENDIX_E_Content_Analysis_Atlas.ti.

APPENDIX_F_BASE_DE_DADOS_SPSS.

Supplementary material can be found online at https://doi.org/10.7910/DVN/QIRMQL

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