UNIVERSIDADE FEDERAL DO PARANÁ

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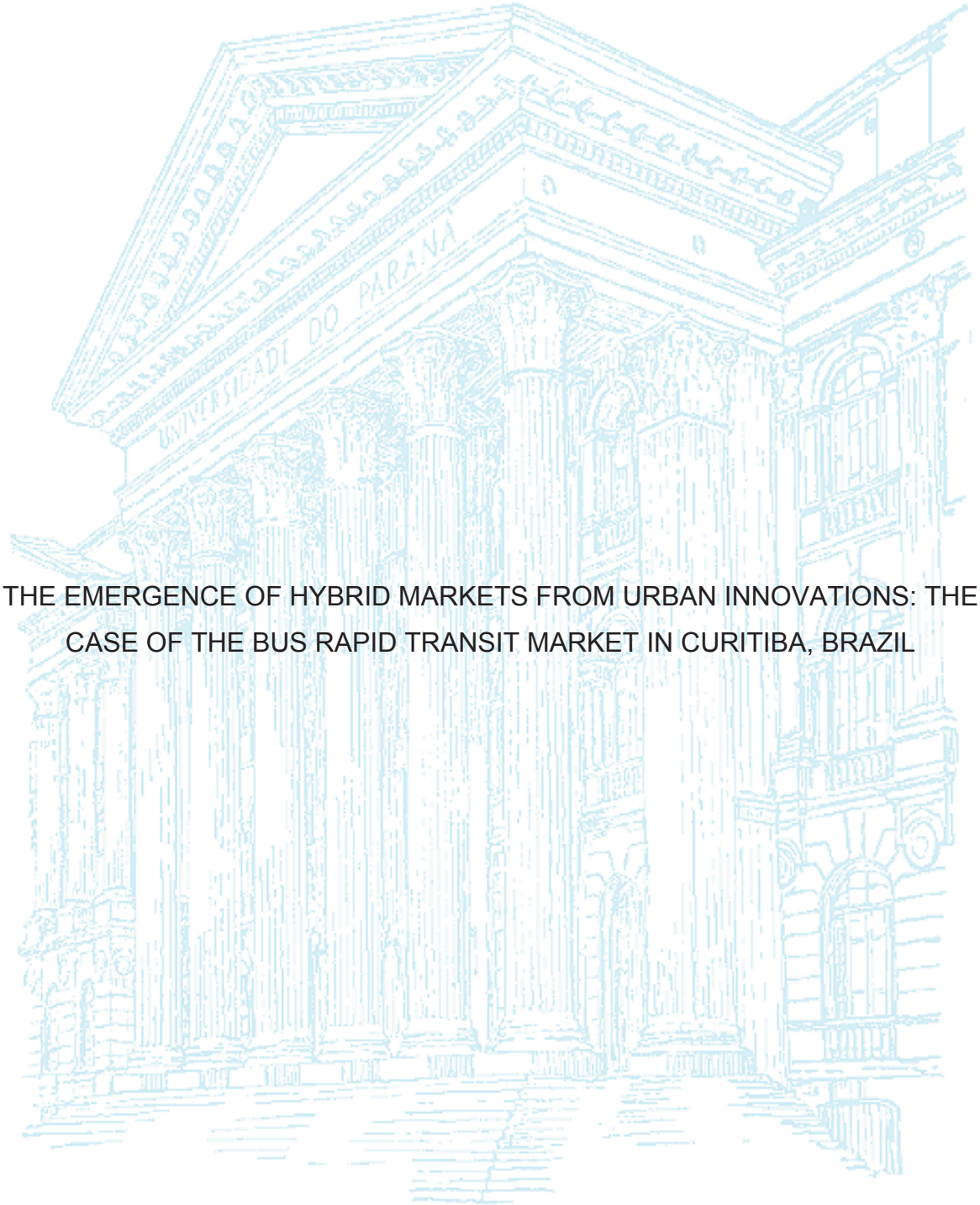

THE EMERGENCE OF HYBRID MARKETS FROM URBAN INNOVATIONS: THE CASE OF THE BUS RAPID TRANSIT MARKET IN CURITIBA, BRAZIL

CURITIBA

2020

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Tese apresentada ao Programa de Pós-Graduação em Administração, Linha de Pesquisa de Inovação e Tecnologia, do Setor de Ciências Sociais Aplicadas da Universidade Federal do Paraná, como requisito parcial à obtenção do título de Doutor em Administração.

Orientadora: Profª. Drª. Andréa Paula Segatto

CURITIBA

2020

FICHA CATALOGRÁFICA ELABORADA PELA BIBLIOTECA DE CIÊNCIAS SOCIAIS APLICADAS – SIBI/UFPR COM DADOS FORNECIDOS PELO(A) AUTOR(A)
Bibliotecário: Eduardo Silveira – CRB 9/1921

Bonfim, Leandro Rodrigo Canto
The emergence of hybrid markets from urban innovations: the case of the bus rapid transit market in Curitiba, Brazil / Leandro Rodrigo Canto Bonfim. - 2020.
222 p.

Tese (Doutorado) - Universidade Federal do Paraná. Programa de Pós-Graduação em Administração, do Setor de Ciências Sociais Aplicadas.

Orientadora: Andréa Paula Segatto.

Defesa: Curitiba, 2020.

1. Bus rapid transit. 2. Complexidade Institucional. 3. Inovação. 4. Mercado. I. Universidade Federal do Paraná. Setor de Ciências Sociais Aplicadas. Programa de Pós-Graduação em Administração. II. Segatto, Andréa Paula. III. Titulo.

CDD 658

MINISTÉRIO DA EDUCAÇÃO
SETOR DE CIENCIAS SOCIAIS E APLICADAS
UNIVERSIDADE FEDERAL DO PARANÁ
PRÓ-REITORIA DE PESQUISA E PÓS-GRADUAÇÃO
PROGRAMA DE PÓS-GRADUAÇÃO ADMINISTRAÇÃO - 40001016025P6

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Os membros da Banca Examinadora designada pelo Colegiado do Programa de Pós-Graduação em ADMINISTRAÇÃO da Universidade Federal do Paraná foram convocados para realizar a arguição da tese de Doutorado de **LEANDRO RODRIGO CANTO BONFIM** intitulada: **THE EMERGENCE OF HYBRID MARKETS FROM URBAN INNOVATIONS: THE CASE OF THE BUS RAPID TRANSIT MARKET IN CURITIBA, BRAZIL**, sob orientação da Profa. Dra. ANDRÉA PAULA SEGATTO, que após terem inquirido o aluno e realizada a avaliação do trabalho, são de parecer pela sua aprovação no rito de defesa.
A outorga do título de doutor está sujeita à homologação pelo colegiado, ao atendimento de todas as indicações e correções solicitadas pela banca e ao pleno atendimento das demandas regimentais do Programa de Pós-Graduação.

Curitiba, 07 de Março de 2020.

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ACKNOWLEDGEMENTS

Dedico essa tese de doutorado a Deus em primeiro lugar, pois nada teria sentido sem Ele; a minha amada esposa Aline, que me deu apoio incondicional, todo amor, cuidado e dedicação durante esse período – te amo; a minha filha Sarah que mudou todo o significado da nossa vida desde que nasceu pouco antes desta tese; a minha família (em especial minha mãe Iliana, meu pai Leovaldo, Tanatiana, Felipe, Ana Paula, Vó Joana, Roberto, Edina, Michel, Priscila) e aos meus irmãos em Cristo.

Agradeço a minha orientadora Andréa Paula Segatto por esses quatro anos que estivemos juntos, aos colegas de orientação (Rodrigo Luiz Morais da Silva, Thálita Orsiolli, Eduardo De-Carli, Simão Justen, Indira Ghandi Bezerra, Ananda Singh, Ana Cáudia Olegário), aos meus colegas de doutorado (Lucas Finoti, Helison Bertoli, Flávio Osten, Victoria Vilasanti, Fracielle Frizzo, Gabrielle Ribeiro, Rafael Demczuk, , Eduardo Villar, Marcos Correa, Emanuel Sandri, Vivien Kaniak, entre outros), aos colaboradores dessa pesquisa, em especial ao Luiz Aurélio Virtuoso, Olga Maria Prestes e Raul Urban. Agradeço institucionalmente ao PPGADM/UFPR (todos os professores e técnicos – especialmente ao servidor Gustavo Resende da Costa), ao Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) e a Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES) pelo apoio durante o meu doutoramento – Código de Financiamento 001. Agradeço também aos membros da banca de ensaio teórico, qualificação e defese de tese (Charles Kirschbaum, Maurício Reinert, Mário Aquino Alves, Cristiano Maciel, Márcio Jacometti, Bárbara Galleli e Taiane Coelho) pelas contribuições a esse trabalho.

I wholeheartedly thank Smeal College of Business at The Pennsylvania State University (M&O faculty, staff – Tina and Holly –, and PhD students – Christine Mihelcic Celeste Díaz Ferraro, Nawon Oh, Soojin Oh, Alex Rheinhardt, Min Young Yoon, Soni Jha, Alessandra Rizzi, Anjier Chen, Jung-Hoon Han, Franzi Schmid) for all the support and for making me a part of the department during my visit. I especially thank Charlene Zietsma and Anna Roberts for all the encouragement, support, and insights you shared with me on a daily basis. I thank the RUF at Penn State (Richard Smith, Hans and Terri Verlinde, Deborah Lee, Bill and Barbara Saxton, Sharon, my Brazilian fellows Carlos and June Menezes, Thais, Maria Vitória, and Isabel) and Calvary Midtown for taking care of me like I was part of your family (Jorn and Bonnie Junod, Steve Logue, Kevin and Kristin Reece, Seyi Ajayi and all the folks from the life group and Third Place).

“In our society, and most other modern societies, markets in which people exchange goods for money play a very important role. But markets do not operate in a social vacuum; they are part of a wider framework of social institutions. And they operate with many externalities: that is to say, many consequences of the actions taken in market economies are not fully incorporated in market prices.”

Herbert A. Simon, *Reason in Human Affairs*, 1983.

RESUMO

O objetivo desta tese de doutorado é entender como mercados híbridos (mercados influenciados por múltiplas lógicas institucionais em seus quatro elementos componentes, ou seja, alocação de recursos e infraestrutura de mercado, regulamentação, classificação de atores e produtos no mercado e avaliação por públicos internos e externos) emergem a partir da complexidade institucional e do trabalho institucional realizado pelos atores sociais no contexto da inovação urbana nos sistemas de transporte público. Problematizamos a partir da literatura existente de sociologia dos mercados, complexidade institucional e trabalho institucional, bem como nos campos da organização híbrida para elaborar um conceito de mercados híbridos e identificar ferramentas analíticas para investigar o fenômeno do surgimento de mercados híbridos. Conduzimos uma investigação aprofundada com base em um estudo de caso único qualitativo do desenvolvimento do sistema de transporte rápido de ônibus em Curitiba, Brasil. Coletamos dados por meio de 24 entrevistas semiestruturadas com 23 informantes-chave, além de coletar 98 arquivos documentais e 614 artigos de jornal a partir de dados de cobertura da mídia. Adotamos a metodologia *Grounded Theory* para analisar os dados e para apresentar uma teoria emergente processual sobre o surgimento de mercados híbridos por meio de trabalho institucional em contextos institucionalmente complexos. Nossos resultados mostram que o processo de emergência do mercado híbrido começa com um trabalho relacional, simbólico e material para reforçar a lógica da relação custo-eficácia, mas também sofre influência de uma lógica alternativa, na alocação de recursos e na construção de infraestrutura de mercado (trabalho de alocação). O próximo estágio em que múltiplas lógicas influenciam o trabalho institucional é criar e/ou alterar a estrutura de regulamentação do mercado (trabalho de regulação). Também encontramos complexidade e trabalho institucional estabelecendo os atores que poderiam operar no mercado híbrido e com que tipo de produto (trabalho de classificação). Finalmente, nossos resultados demonstram que todas as lógicas institucionais identificadas (lógica de custo-eficácia, ambiental, estética e humanizadora) influenciam o processo de expansão e difusão do mercado, alterando a forma como o público (interno e externo) avalia o sistema de transporte baseado em ônibus rápido (trabalho de avaliação). Vimos também que o número de múltiplas lógicas que influenciam o mercado de transporte rápido de ônibus cresceu à medida que o mercado híbrido evoluiu através dos estágios de desenvolvimento, ou seja, argumentamos que a hibridação do mercado envolve o processo de escalada da complexidade institucional. Argumentamos que o processo de desenvolvimento do sistema de transporte rápido de ônibus em Curitiba contribui com a indústria global de ônibus, especialmente em termos de uso das relações organizacionais e interorganizacionais (trabalho relacional), alterando a estrutura física das cidades e seus equipamentos (trabalho material) e utilizando o discurso e a linguagem (trabalho simbólico) para reduzir os custos de transporte público (custo-eficácia), mitigar o impacto causado ao meio ambiente (ecológica), levar desenvolvimento socioeconômico para áreas empobrecidas e justiça social para os cidadãos das cidades modernas (humanizadora), e fazer tudo isso através de um design inteligente que faz do transporte público parte da paisagem urbana moderna (estética).

Palavras-chave: Bus rapid transit. Complexidade institucional. Inovações Urbanas. Mercados híbridos. Trabalho institucional.

ABSTRACT

The purpose of this doctoral dissertation is to understand how hybrid market (markets which are influenced by multiple institutional logics in their four composing elements, that is, allocation of resources and market infrastructure, regulation, classification of the actors and products in the market, and evaluation by internal and external audiences) can emerge through the institutional complexity and institutional work performed by social actors in the context of urban innovation in transport systems. We problematize from the extant literature in the sociology of markets, institutional complexity and institutional work, as well as in the hybrid organization fields to elaborate a concept of hybrid markets and analytical tools for the phenomenon of hybrid markets' emergence. We conduct an in-depth investigation based on a qualitative single case study of the development of the bus rapid transit system in Curitiba, Brazil. We collected data through 24 semi-structured interviews with 23 key informants as well as gathered 98 archival material and 614 newspaper articles from media coverage data. We adopt a Grounded Theory methodology for analyzing the data to present an emerging process theory about the emergence of hybrid markets through institutional work in institutionally complex contexts. Our results show that the process of hybrid market emergence starts with relational, symbolic and material work to reinforce the cost-efficacy logic, but also suffering influence of an alternative logic, in the allocation of resources and on the construction of market infrastructure (allocation work). The next stage in which multiple logics influence institutional work is at creating and/or changing the regulatory structure of the market (regulation work). We also find institutional complexity and institutional work by establishing the actors that would be allowed to operate in the hybrid market and with which kind of product (classification work). Finally, our results show that all institutional logics identified (cost-efficacy, environmental, aesthetic, and humanizing logics) influence the process of market expansion and diffusion by changing how the audience (internal and external) valued bus-based transport system (evaluation work). We also find that the number of multiple logics influencing the bus rapid transit market has grown as the hybrid market evolved through the stages of development, that is, we argue that market hybridizing involves the process of escalating institutional complexity throughout the time. We argue that the process of development of the Bus Rapid Transit system in Curitiba contributes to the whole bus industry even at a global level, especially in terms of using the organizational and interorganizational relationships (relational work), changing the physical structure of cities and its equipment (material work), and using the discourse and language (symbolic work) reducing the costs of public transport (cost-efficacy logic), mitigating the impact caused to the environment in terms of polluting gases emission (ecology logic), bringing development to impoverished areas and taking social justice for the citizens of modern cities (humanizing logic), and making all these things through an intelligent design that is able to turn the public transport into an harmonious part of the modern urban landscape (aesthetic logic).

Keywords: Bus rapid transit systems. Hybrid markets. Institutional complexity. Institutional work. Urban Innovations.

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS AND ACRONYMS

APPUC	-	Assessoria de Pesquisa e Planejamento Urbano de Curitiba
BADEP	-	Banco de Desenvolvimento do Paraná
BNDES	-	Banco Nacional de Desenvolvimento Econômico e Social
BRT	-	Bus Rapid Transit
CAIO	-	Companhia Americana Industrial de Ônibus de São Paulo
CODEPAR	-	Companhia de Desenvolvimento do Paraná
COMEC	-	Coordenação da Região Metropolitana de Curitiba
CTA	-	Central de Tráfego de Área
DER	-	Departamento de Estradas de Rodagem
DNER	-	Departamento Nacional de Estradas de Rodagem
DSUP	-	Departamento de Serviços de Utilidade Pública de Curitiba
EBTU	-	Empresa Brasileira de Transportes Urbanos
FAM	-	Fábrica de Artefatos Metálicos Ltda
FINAME	-	Financiamento de Máquinas e Equipamentos
FTA	-	United States Federal Transit Administration
GEIPOT	-	Empresa Brasileira de Planejamento de Transportes
IBRD	-	International Bank for Reconstruction and Development
IPPUC	-	Instituto de Pesquisa e Planejamento Urbano de Curitiba
ITDP	-	Institute for Transportation and Development Policy
ITN	-	Integrated Transport Network
PROÁLCOOL	-	Programa Nacional do Álcool
RATP	-	Régie Autonome des Transports Parisiens
R&D	-	Research and development
RIT	-	Rede Integrada de Transporte
SEMAT	-	Semáforos Atuados por Veículos
SETRANSP	-	Sindicato das Empresas de Ônibus de Curitiba e Região Metropolitana
SOFRETU	-	Société Francaise d'Études et de Réalisation de Transports Urbains
STPU	-	Sistema de Transporte Público Urbano
TOD	-	Transit-Oriented development
TOI	-	Transit-Oriented inclusion
UN	-	United Nations
URBS	-	Urbanização de Curitiba S/A

SUMMARY

1 INTRODUCTION

"BRT [bus rapid transit] in Curitiba has become a cultural touchstone, the city's answer to the freewheeling carnival spirit of Rio and the fast-paced, business-dominated lifestyle in São Paulo." - The Guardian

A more inclusive society is only possible when communities embrace diversity and respect each other's identity. These are key assets of cities, which are historically the places where 'differences' meet. Indeed, the ability of cities to spark creativity and innovation is derived from encounters and even friction among differences". - Jaime Lerner, former Mayor of Curitiba and architect, for The Economist – Intelligence Unit

Nowadays, an older form of society, with well-defined roles for the state, markets, families, and religion, have been "replaced by a denser but much more dispersed set of regulations built into multiple environments" (MEYER; BROMLEY, 2013, p. 381). The way organizations deal with multiple environmental pressures has been investigated under the auspice of theories such as institutional theory (DIMAGGIO; POWELL, 1983; FRIEDLAND; ALFORD, 1991), contingency theory (DRAZIN; VAN DE VEN, 1985), and population ecology of organizations (HANNAN; FREEMAN, 1977). Later, research started considering the embedded agency of organizational actors, that is, their capability to change the set of rules and norms that govern their actions (BATTILANA; D'AUNNO, 2009), giving rise to a new stream in the field, institutional work (LAWRENCE; LECA; ZILBER, 2013; LAWRENCE; SUDDABY; LECA, 2011).

More recently, the mutual influence of this multiplicity of institutional pressures in organizational fields has been called institutional complexity (GREENWOOD et al., 2011; MICELOTTA; LOUNSBURY; GREENWOOD, 2017). However, Hampel, Lawrence, and Tracey's (2017, pp. 572-575) comprehensive review show that research on institutional complexity and work still presents concerning blind spots. For example, the authors argue that (a) current literature "tend to ignore how actors purposefully and skillfully affect the meaning and status of major institutions."; (b)

institutional complexity and institutional work “prioritized field- and organization-specific institutions rather than institutions that cut across fields;” (c) we know little “about the work needed to marshal support from actors in different fields, who may have vastly different goals and occupy very different roles,” that is, the focus is narrowed in homogenous sets of actors; and (d) we also have limited knowledge about the work of actors when negotiating formal and informal institutional standards.

Considering that markets are one of the central institutions of modern society (BECKERT, 2009b; FRIEDLAND; ALFORD, 1991), we propose to tackle these shortcomings analyzing how institutional complexity and institutional work performed by social actors influence such institution (market) in the context or urban innovation in transport systems. To do so, first, we rely on the economic sociology and sociology of markets research (FLIGSTEIN; CALDER, 2015; LIE, 1997; WHITE, 1981) for understanding what a market is and who are the players of the marketplace. In this regard, we consider markets as institutional arenas of negotiated interests, where the rules of exchange and the norms underlying social and economic transactions, the resource allocation and market infrastructure, as well as the roles played by market actors and how they are evaluated by the audience are socially constructed (FLIGSTEIN; DAUTER, 2007).

Furthermore, McKague, Zietsma, and Oliver (2015, p. 1087) suggest that “scholars who take seriously the concept of embeddedness view markets as inherently hybridized”. However, we argue that research in both institutional theory and economic sociology have been still neglecting the phenomenon of hybridization (that is, how the embeddedness of markets in multiple and complex institutional settings affects their underlying sets of values, practices, and boundaries) in a market-level analysis. Institutional analysts have been limiting their scope to the organizational-level analysis of complexity, specifically in what regards to hybrid organizations (BATTILANA; BESHAROV; MITZINNECK, 2017; SMITH, W. K.; BESHAROV, 2019). Despite recent efforts to research hybridization at higher levels of analysis, such as field and logic-level (FAN; ZIETSMA, 2017; YORK; HARGRAVE; PACHECO, 2016) markets are yet to be considered a locus of analysis of hybridization under institutional lenses. It is also worthy of note that economic sociology and sociology of markets have yet to give more than just scant attention to hybrid organizational forms (BECKERT, 2009b).

Thus, through this doctoral dissertation, we aim to address this gap in the institutional theory and sociology of markets literature regarding how institutional

complexity can lead to the emergence of hybrid markets. We tackle this gap in a two-stage effort. First, we systematize the analytical tools to investigate market hybridization based on extant research on institutional complexity and change as well as in the sociology of markets camp. The proposed framework is based on the source of efforts (endogenous or exogenous) (ZIETSMA; LAWRENCE, 2010) for changing the four core elements of markets (regulation, allocation, classification, and evaluation), the outcomes (market creation, change, and disruption) of institutional work for explaining when market hybridization takes place (LAWRENCE; LECA; ZILBER, 2013; LAWRENCE; SUDDABY; LECA, 2011), and on the means (symbolic, material, and relational work) adopted by market actors for explaining how do markets hybridize (HAMPEL; LAWRENCE; TRACEY, 2017).

Second, we inductively investigate the hybridization process in an urban innovation setting, specifically concerned with innovations in an urban transport system. Urban innovations can lead to market hybridization because they are innovations that aim at addressing grand societal challenges (FERRARO; ETZION; GEHMAN, 2015; GEORGE et al., 2016) that have multiple far-reaching social functions that affect more than half of the global population (MEIJER; THAENS, 2018). Thus, we propose an emerging theory of market hybridization through institutional complexity and institutional work of social actors that are operating in this urban market arena. Thus, this research aims to answer the following research problem: **How institutional complexity and institutional work performed by social actors can lead to the emergence of a hybrid market in the context of urban innovation in transport systems?**

The empirical setting of our research is comprised of the urban innovations in the transport system held in the city of Curitiba, Brazil, which is widely known as the pioneer in the development of the Bus Rapid Transit system (BRT) (PAGET-SEEKINS; MUÑOZ, 2016). The bus rapid system is defined as “a bus-priority mode featuring high-capacity vehicles with rubber tyres, often operating on dedicated rights of way (that is, segregated corridors) with busway alignment, intersection priority, off-board payment and level boarding” (FERBRACHE, 2019, p. 2). The core of the idea is designing a surface metro-like system (PAGET-SEEKINS; MUÑOZ, 2016) in which buses emulate rail-based transport systems such as subways. As Paget-Seekins and Muñoz (2016, p. 3) argue, “[t]he promise of the BRT is that it can serve as a catalyst for embedding sustainable transport into the fabric of the city” because it can reduce greenhouse gas

emissions, include poorest populations in the urban life, and also induce transit-oriented development in the cities, all at a fairly low cost and time of implementation (FERBRACHE, 2019; INGVARDSON; NIELSEN, 2018; LINOVSKI; BAKER; MANAUGH, 2018).

Thus, the creation and development of the BRT as an urban innovation is helpful to answering our research problem, since it presents the features that allows observing the phenomenon of hybridization of markets, given its inherently complex nature in which economic, social, and environmental issues must be aligned at some extent. Moreover, considering that market emergence and change is an ambiguous and complex process that can be extended over a long period of time (GRANQVIST; KALLIO; NISSILÄ, 2018), having Curitiba as our research setting provides us with the opportunity to understand the hybridization process that had occurred through the development of the BRT system and market in its purest form, that is, where it was originally conceived before being spread around the globe.

1.1 RESEARCH PURPOSE

Given the problematization we presented above, this research aims to analyze **how institutional complexity and institutional work performed by social actors can lead to the emergence of a hybrid market in the context of urban innovation in transport systems.** For achieving this purpose, we divided this overall research purpose into specific purposes, which are listed below.

1.1.1 Specific purposes

a) Characterizing the urban innovations that had occurred in the development of the bus rapid transit system;
b) Identifying the main actors that were involved in the process of development of the bus rapid transit system market;
c) Capturing the underlying logics of the market that have emerged from the development of the bus rapid transit system market in Curitiba;
d) Investigating the types of institutional work held by the previously identified actors to embed logics other than market logics during the emergence of the bus rapid transit hybrid market;

e) Analyzing how the process of hybrid market emergence have unfolded during the implementation of the urban innovations in the bus rapid transit system in Curitiba.

1.2 RELEVANCE OF THE RESEARCH

In this section, we aim to present the justification of the relevance of this research both in theoretical and practical or empirical terms. We start presenting why our research is theoretically relevant in terms of contributions to our target academic audience, that is, innovation studies, organizational theory, and sociology of markets. Regarding innovation studies, this doctoral dissertation adds contributions to the understanding of innovation as a complex process, since issues as temporal and cultural complexity have been widely neglected by innovation scholars (GARUD; TUERTSCHER; VAN DE VEN, 2013). We also address Garud, Tuertscher, and Van de Ven's (2013) concerns regarding the lack of studies covering innovation from the inception to implementation. Moreover, considering that our research setting impacts millions of people all over the world, our study is relevant for expanding current understandings on "the wider ramifications of continual innovation on communities and societies at large" (GARUD; BERENDS; TUERTSCHER, 2018, p. 21).

We also bring contributions to the organizational theory camp, specifically to the contemporary discussions on institutional complexity and institutional work. We argue that the emergence of hybrid markets, that is, markets comprising multiple institutional logics such as commercial logic, community logic, and pro-environmental logic (MAIR; REISCHAUER, 2017), was yet to be investigated, specifically when considering institutional work from actors to create market boundaries and practices (CARTEL; BOXENBAUM; AGGERI, 2019; ZIETSMA; LAWRENCE, 2010) that encompasses the likely distinct and conflicting interests of market participants. Such distinctions can be clearly observed when markets involve actors from different sectors of formal society, such as social, private, and public sectors (NICHOLLS, 2010; SMITH, S. R., 2010). In this scenario, located in the intersection of interests of states, organizations, and citizens, the problem of markets goes beyond profit (MCKAGUE; ZIETSMA; OLIVER, 2015).

Furthermore, places matter in institutional work, playing roles as containing, mediating, or complicating factors in institutional creation and change (LAWRENCE; DOVER, 2015; ZILBER, 2018). We believe the same is also true for hybrid markets. Markets are not geographically bounded by definition, but the fact that people live in cities (RATTEN, 2017) may give them a sense of emotional attachment to these places that could facilitate the construction of a collective identity that provides meaning for the development of hybrid markets (FAN; ZIETSMA, 2017; WRY; LOUNSBURY; GLYNN, 2011). Put in other words, we contend that studying the emergence of hybrid markets when it takes place in the inner-city boundaries (as it is the case of Curitiba's BRT system) helps clarifying if places are a containing factor of institutional work in the emergence of hybrid markets.

Finally, our research is also relevant for advancing the knowledge on the sociology of markets. Contrasting to a dominant static view of markets, we provide in-depth understanding of the conflicts, changes and evolution that can occur during ongoing market dynamics (AHRNE; ASPERS; BRUNSSON, 2015; PADGETT; POWELL, 2012), considering not only the economic realm on market transactions, but environmental, social, and cultural aspects that can lead to emergence of hybrid markets. In this regard, our research contributes on the sociology of markets field by showing how institutional complexity affects the four comprising elements of markets: regulation, resource and infrastructure allocation, classification, and evaluation (ASPERS, 2018; BECKERT, 2009b; SCHNEIBERG; BARTLEY, 2008).

Furthermore, we also claim that the relevance of this doctoral dissertation is not limited to theory, being extended to the practice and empirical realms. In this regard, one may wonder why understanding hybrid market emergence is relevant in the proposed setting – urban innovation in transport systems. The United Nations (2018b) report that more than half of the global population live in urban areas today, compared to 30% in 1950. Furthermore, it is projected that 68% of the world's population will be living in cities by 2050. Considering the growing densification of urban areas, problems such as traffic congestions, long and time-consuming commuting, as well as the growing pollution in urban areas arises as a matter of concern regarding their impact on quality-of-life in urban living (NIJKAMP; KOURTIT, 2013; TALMAGE; FREDERICK, 2019).

In this concern, transporting people from one place to another in the inner cities (i.e., mobility) have been considered one of the 21st centuries grand societal

challenges (FERRARO; ETZION; GEHMAN, 2015; GEORGE et al., 2016), inasmuch as achieving sustainable cities and communities is expressed as one of the Sustainable Development Goals to be achieved by 2030 (UNITED NATIONS, 2018a). Moreover, tackling such urban grand challenges in larger societal spheres demand a transition from a functional and project-level view of the problem to a societal-level endeavor (MANDERS; WIECZOREK; VERBONG, 2018). We believe that showing how the innovation on the BRT system in Curitiba evolved to the emergence of a hybrid market "from the bottom up" (FERBRACHE, 2019) can encourage other cities to pursue more sustainable alternatives for their urban transport systems.

Furthermore, we believe that market firms can also take advantage of understanding further the emergence of hybrid markets. As Granqvist, Kallio, and Nissilä (2018, p. 263) argue, market emergence and change is "an elusive object to trace", thus, capturing market emergence and change at real-time can provide firms with first-mover advantages (SCHALTEGGER; WAGNER, 2017), that is, they can become dominant actors in the hybrid markets due to their capacity to provide services and goods aligned with new audience expectations (evaluation). Governments can also benefit from our research since they can share with market actors the responsibility of developing a more sustainable and equal transport system or any other kind of public service that can lead to the emergence of hybrid markets.

1.3 DOCTORAL DISSERTATION STRUCTURE

Beyond the introduction, this doctoral dissertation is comprised of 5 additional chapters: theoretical framework, research methods, data analysis, discussion and conclusion. They are organized as follows. In the theoretical background, we present a section discussing the economic sociology and the sociology of markets intending to understand the social construction of markets under this perspective. Next, we present a section about the institutional context of marketplaces, specifically discussing the role of institutional complexity and institutional work in market emergence and change. In the following section, we argue about the need to discuss hybridization at a market-level of analysis, which led us to a section presenting the concept of hybrid markets and the process of market hybridization.

Regarding the research methods chapter, we start it presenting the research problem, the research questions, and the analytical categories we address in this doctoral dissertation. Next, we present our ontological, epistemological, and logical assumptions with the intent to make clear to our audience what lens we are using to understand hybrid markets emergence. Then, we present the research design and our criteria for case selection and our methods for data collection and analysis. We dedicate the following section to discussing methodological rigor, as well as our research a priori boundary conditions and limitations. Finally, we present the empirical setting in which our research is contextualized.

On the results chapter, we divide it into two main sections. The first is dedicated to the field narrative, in which we provide a detailed account of the antecedents of the system and of the urban innovations that were implemented during the development of the urban innovations in the bus transport system of Curitiba. This section results in the chronology of the innovations of the bus rapid transit system, which allow us to divide data analysis into three major stages that represent the transitions from the market emergence until the market diffusion: 1960s-1970s, from pre-market to hybrid market emergence; 1970s-1980s, from hybrid market emergence to consolidation; and, 1990s-2000s, hybrid market expansion and diffusion. In each stage, we identify the influence of institutional complexity and institutional work on the hybrid market allocation, regulation, classification, and evaluation.

In the following chapter, discussion, we provide a theoretically generalized account of the process theory of hybrid market emergence (which is the core thesis of this doctoral dissertation), especially considering the hybridization of each element of markets: allocation work, regulation work, classification work, and evaluation work. The closing chapter of this dissertation is the conclusion, in which we provide research implications for theory, practice, and avenues we identify from our emerging theory regarding future studies to investigate it further.

2 THEORETICAL BACKGROUND

2.1 ECONOMIC SOCIOLOGY AND THE SOCIOLOGY OF MARKETS

In essence, markets have been considered a central domain of economics discipline (LIE, 1997), especially considering classic utilitarian traditions that viewed markets as a product of a set of atomistic rational-choice decisions about price, production, distribution, and consumption of goods (GRANOVETTER, 1992; LEVINE, 1980). However, critical voices arose claiming to bring markets back to the sociological discussion, given that markets were products of social relationships of actors reflecting the cultural and historical aspects of their societies, not of the anonymous and invisible hands as preached by neoclassical economics scholars (FLIGSTEIN, 2015; LIE, 1997). Such claims resulted in the emergence of a New Economic Sociology, bringing its two founding papers into prominence in the 1980s, Harrison White's paper "Where do markets come from?" (WHITE, 1981), and Mark Granovetter's article "Economic action and social structure: The problem of embeddedness" (GRANOVETTER, 1985).

On the one hand, the key insight in White (1981) is his proposition that markets are role structures, where firms watch the behavior of their peers seeking to be positioned in niches where they may offer distinguishable products in terms of quality and volume for potential buyers, guaranteeing a sustainable role in the marketplace. It is possible to argue that White's approach to market resonates with the Weberian notion of social action, in which actors behave taking into account the behavior of others (WEBER, 1978), that is, considering past and present actions along with expectations of the future actions of others while performing their own actions. On the other hand, Granovetter (1985) borrowed Karl Polanyi's (1957) notion of embeddedness to claim that economic action is embedded in a network of interpersonal relationships. For him, the extant economics literature was leaning towards two extreme positions, an "oversocialized" account of economic action on one side, and an "undersocialized" view of it on the other (GRANOVETTER, 2017).

Extending the concept of embeddedness, Granovetter (2017, p. 17) argued that "all social action and outcome, are affected by actors' social relations to others and also by the structure of the overall network of those relations," that is, by their relational and structural embeddedness. The relational embeddedness is concerning the quality of the relationships between social actors, that is, the strength of such

relationships in terms of trust and closeness, for instance. On the other hand, structural embeddedness is related to the kind of network an actor is embedded in and to his relative position in this network. Granovetter's distinction of the kind of embeddedness has been followed by a myriad of scholars, especially in management and organization studies[1] (BRAILLY et al., 2016; cf. DACIN; VENTRESCA; BEAL, 1999; MORAN, 2005; e.g., UZZI, 1997).

However, despite being a foundational and influential concept of Economic Sociology (CARRUTHERS, 2018; SMELSER; SWEDBERG, 2005), the notion of embeddedness is not exempt from criticism. For example, Krippner and Alvarez (2007, p. 220) criticized the "theoretical vagueness" of the concept, since that, "at its core, embeddedness deals with two interrelated problems: on the one hand, how to conceptualize the relationship between the economic and the social, and on the other, how sociology as a discipline should define its agenda vis-à-vis economics." In turn, Beckert (2009a) asserts that Granovetter's early conception of embeddedness oversimplifies the institutional mechanisms and macrosocial change that underpin his economic analyses[2]. Additionally, he also states that the focus on the structural analysis of networks led to the neglect of the social content underlying such structures.

In response to criticisms regarding the early emphasis on the network argument for economic outcomes, economic sociologists ended up broadening the scope of the field "as a very ecumenical enterprise on both substantive and analytic grounds" (FOURCADE, 2007, p. 1017). Thus, besides network theory, scholars started to rely on institutional theory in organization studies, political economy, and more recently, in actor-network theory regarding performativity studies (FLIGSTEIN; CALDER, 2015; FOURCADE, 2007). It is also noteworthy that economic sociology, in general, extended their domains beyond the studies of markets, encompassing traditional sociological topics such as immigration (PORTES; SENSENBRENNER, 1993), organized crime (KLEEMANS, 2013), intimacy relationships (ZELIZER, 2005), and workplace affection (MA, 2015). However, we rely on the economic sociology stream of research that has a narrow focus on the market, "as the sociology of markets

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[1] For a comprehensive overview of the usage of the concept of embeddedness in organization studies, see Dacin, Ventresca and Beal (1999).

[2] For doing justice to Mark Granovetter, in his latest work (GRANOVETTER, 2017) he takes into account recent developments of institutional theory, dedicating the last two chapters of the book (5 and 6) to social institutions. He recognizes that economic activity is influenced by a multitude of institutional patterns.

and organizations still has the upper hand and will continue to have it for some time to come" (FOURCADE, 2007, p. 1018).

Sociology of markets itself is not an uncontested field. For instance, defining the boundaries of the concept of markets, that is the raison d'être of the field, is not an easy task. As we mentioned above, earlier delimitation of markets (WHITE, 1981) considered only their role structures, especially concerning competition, suppliers, and buyers. Later, as the field evolved, sociologists started to consider markets as broader social constructions of formal and informal rules of patterned exchange between buyers, sellers, consumers, governments, and workers (FLIGSTEIN; CALDER, 2015). Furthermore, scholars noticed that markets demand certain resource allocation and institutional infrastructure where the exchange takes place under socially negotiated norms, rules and shared beliefs (HININGS; LOGUE; ZIETSMA, 2017; LEE; STRUBEN; BINGHAM, 2018; MCKAGUE; ZIETSMA; OLIVER, 2015), that is, the stage where market actors play their roles. Besides, like every social phenomenon, markets are not exempt from conflict and diverging interests. Beckert (2009b, p. 246) asserts that markets are arenas of social interaction comprising social structures and institutional orders, "in which actors are confronted with profound coordination problems." Such problems might become sources of power struggle and conflicts (DOBBIN, 2004).

In this regard, Beckert (2009b) claims that three central coordination problems emerge as a source of uncertainty in markets: the value, the cooperation, and the competition problem. The value problem, according to the author, is related to the audience's constitution of preferences, that is, to how the demand side of markets perceives the value of the service or product being offered. This process is called evaluation, in which given institutionalized standards are adopted for ascribing value to market offerings (ASPERS, 2018; FLIGSTEIN, 2001). As noticed by Aspers (2018), in the absence of objective standards or rankings, audiences assume the role of assessment of what is "good" and "bad", and the evaluated (market actors) "fight out" for reducing uncertainty and being perceived as valuable by the audience. These contests, as called by the author, stems from a mutual adjustment instead of a consequence of intentional actions.

The second central coordination problem is cooperation. As suggested by Weber (1978), markets shall be considered a form of social action, which presupposes that firms perform their exchanges considering that the other party is going to behave

accordingly. Thus, the extent of cooperation with suppliers and competitors, the social risk of defection, and the forms of sanctioning opportunistic behaviors have been extensively studied in fields such as institutional economics, economic sociology, and rational choice economics (BECKERT, 2009b). The third is competition. In this regard, competition problems are inherent to the market constitution, as for without competition and exchange, markets cannot exist (WEBER, 1978)[3]. Furthermore, organizations compete in the marketplace not only in terms of price competition, but also compete for customer attention (BACKMAN; BÖRJESSON, 2006), for advantageous status positions (PODOLNY, 1993), for access to scarce resource and information (BURT, 1992), and for authority, power, and control (ZALD; LOUNSBURY, 2010).

However, research has shown that competition is the weakest market force, behind institutions and power (BAKER; FAULKNER; FISHER, 1998). Thus, since Dobbin and Dowd's (1997, p. 524) study concerning the formation of the railroad market in Massachusetts suggest that "without government monetary systems, legal frameworks for incorporation, and laws governing exchange, the world would have not markets as such", we argue that there is a need to elevate regulation to the status of a fourth central coordination problem[4], that is, the regulation problem. Over the last two centuries, the escalation of economic and social regulations over industrial activities, and later waves of neoliberalism (SCHNEIBERG; BARTLEY, 2008), have become a matter of concern for organizational scholars. Thus, the paradox regarding the extent in which economic activity should or should not be regulated has never reached a consensual status, especially considering contemporary trends towards the globalization and transnationalism (see MORGAN, 2008, for an example on the regulation of derivatives in international financial markets).

Neoliberalist economists defended a self-regulated laissez-faire market, and as a consequence, we witnessed an "unqualified deregulation", in which "[e]conomists had joined consumer advocates to delegitimate economic regulation in the United States, and then joined with international organizations to spread the gospel of

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[3] It is noteworthy that a Weberian conception of markets was only built on his late-works, especially in Economy and Society (SWEDBERG, 2000). Swedberg (2000, p. 378) also states that the second chapter of the first part of Weber's work (1978) can be considered one of the first readings on economic sociology ("*Wirtschaftssoziologie"*), since it presents "a sociological analysis of economy and its institutions".

[4] Despite discussing the role of regulative forces in establishing the social order of markets, Beckert (2009b) does not consider regulation as a central coordination problem of markets.

markets, privatization, liberalization, and shock therapy" (SCHNEIBERG; BARTLEY, 2008, p. 36). Moreover, as advised in the early years of the 20th century, purely free markets are an abomination to market ethics (cf. WEBER, 1978), and research has shown that such under-regulation led to critical consequences, as manifested in the subprime mortgage crisis in the U.S. financial markets in 2008 (CAMPBELL, 2010; MIZRUCHI, 2010).

On the other end of the spectrum, over-regulation was also found to be harmful to be considered an impediment to competitiveness, efficiency and growth (SCHNEIBERG; BARTLEY, 2008). For example, U.S. Food and Drug Administration (FDA) over-regulation over the pharma industry have been reducing drug discovery and development (R&D), as well as elevating the costs, increasing the final prices of medicines, and delaying patients' access to up-to-date treatments (MOORS; COHEN; SCHELLEKENS, 2014; VERNON; GOLEC, 2011). In Brazil, over-regulation in the firearm industry led to excessive market concentration, since only domestic industries were allowed to produce and sell guns and ammunition in Brazilian territory. Consequently, the decrease in terms of quality and effectiveness of firearm products resulted in the death and injury of Brazilian law enforcement officials after incidents with defective guns produced by Forjas Taurus[5].

That being said, our understanding of market regulation is in accordance with Schneiberg and Bartley's (2008) view of the complexity of such a coordination problem. In this regard, market regulation is beyond considering the intervention of the state as an authoritative power of the system of exchange (BIGGART; DELBRIDGE, 2004; REA, 2017). It is, in fact, an institutional order that are a precondition for markets, being "populated by social movements, nonprofit organizations, expert professions, and state agencies with their own agendas, […] moving beyond capture to consider the effects of ideas, institutions, the mobilization of experts, and legitimacy crises" (SCHNEIBERG; BARTLEY, 2008, p. 34). Given the embeddedness of markets in social relations, market regulation occurs through rules and norms of exchange that are socially constructed by market actors (insiders and outsiders); and the defiant behaviors, even by high-status members, are sanctioned by the same actors that

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[5] For a detailed description of this case, see the article "How defective guns became the only product that can't be recalled", published in Bloomberg Businessweek in February 28, 2018. Available at: https://www.bloomberg.com/news/features/2018-02-28/how-defective-guns-became-the-only-product-that-can-t-be-recalled.

participate in building the marketplace (MILLER; CHEN, 1996; PHILLIPS; TURCO; ZUCKERMAN, 2013).

Thus, given the aforementioned discussion under the light of sociology of markets, we understand markets as institutional arenas of negotiated interests, in which actors might socially define the rules and norms underlying the economic and social transactions (regulation), the infrastructure and resource allocation necessary for the functioning of the market, the roles played by each actor, and the perception of value of the goods and services that are going to be produced and traded in the marketplace. Thus, considering that "the sociology of markets lacks a theory of social institutions" (FLIGSTEIN, 2001, p. 8), the next section aims to shed light on the institutional context of markets.

2.2 INSTITUTIONAL CONTEXT OF MARKETS: COMPLEXITY AND WORK

Adopting institutional premises for analyzing markets and their dynamics is not a totally new effort. In the sociology of markets, for example, Aspers (2010) investigated the fashion markets considering them as social orders constituted of a clear definition of what the market is, the rules of engagement concerning formal and informal institutions, and the perception of value (in terms of price) of what is produced and traded in marketplace. Danny Miller and Chen (1996, p. 1227) shows that deviant firms in the U.S. airline market would be penalized in terms of economic performance due to their nonconformity to established practices in the market (aligned with DiMaggio and Powell's [1983] argument regarding isomorphism), and that "the nonconformity of market participants arose in part from their social context and in part from their relationships to that context." Taking Dick Scott's definition of institutions as comprising "regulative, normative, and cultural-cognitive elements, that, together with associated activities and resources, provide stability and meaning to social life" (SCOTT, 2013, p. 56), it is clear that the usage of market order as stable mechanisms of exchange presented in the examples above resembles the definition of institutions as durable social structures.

However, borrowing the autocatalysis metaphor from Padgett and Powell (2012, p. 28) and considering that markets as "social structures should be viewed more as vortexes in the flow of social life than as buildings of stone", we argue that although

presenting stable and durable features that are the glue that holds markets together, an institutional account of markets shall take into consideration the conflicts, changes and evolution occurred during ongoing market dynamics (AHRNE; ASPERS; BRUNSSON, 2015). For example, when investigating the changes in the dairy market in Bangladesh, McKague, Zietsma, and Oliver (2015) found that the organization of market occurred through the efforts of engaged actors for establishing a social structure comprising social and material embedding. Thus, the dairy market took place after the actors started to trust each other, assumed new legitimate norms and practices, and created social bonds throughout the value chain.

For avoiding analytical confusion, at this point, it is useful to make the distinction between the terms that are usually adopted interchangeably with markets for making compatible our arguments from the sociology of markets and institutional theory. For us, it is a matter of analytical level. Markets are in a more proximal level of relationship between actors, such as buyers, sellers, consumers, governments, and financing organizations. Industries, in turn, can be a collection of several markets. For example, within the aviation industry, there may be the aircraft turbine market, the aviation fuel market (avgas), the aircraft market, the airline market as service providers, and so on. The next level of analysis is the institutional field, that is “those organizations that, in the aggregate, constitute a recognized area of institutional life: key suppliers, resource and product consumers, regulatory agencies, and other organizations that produce similar services or products” (DIMAGGIO; POWELL, 1983, p. 148). For instance, our definition of markets resembles the classical definition of organizational fields provided by DiMaggio and Powell (1983).

However, we argue that the difference resides in the fact that fields might involve actors from the outside of the market but taken as members of the field for being part of their recognized institutional life (e.g., intergovernmental organizations such as World Health Organization, World Bank, Organization for Economic Co-operation and Development, and International Monetary Fund). In this regard, a single market may be a part of more than one institutional field. For extending this argument, we rely on Zietsma and colleagues’ (2017) differentiation between issue fields and exchange fields in what regards to the main purpose of the field. In essence, every market is embedded in an exchange field, in which there is a given focal population of actors in interaction and exchange with their partners (ZIETSMA et al., 2017). According to the authors, there are three types of focal populations in exchange fields:

industry, professions, and social movements. However, markets may be also embedded in issue fields, that is, fields in which the formation is given through a particular cause instead of general exchange transactions, such as the field formed around the safety concerns about drug addiction investigated by Lawrence (2017). Issue fields are not as homogeneous as exchange fields in terms of population since they can contain actors with a distinct set of practices and identities. Issue fields are divided into competitive, interstitial, and bridging issue fields.

For instance, consider the green urban transport policies depicted by Carvalho, Mingardo and Van Haaren (2012); it is possible to infer that although being in separate geographic spaces, Volvo and Daimler-Chrysler shared the same market, production of buses for mass transport. However, this market was at the same time a subfield of the institutional exchange fields of transport systems and a subfield of the institutional issue fields related to pressures in the direction to green technological alternatives for transportation. Considering Zietsma and colleague's (2017) typology, this issue field would be an interstitial one, since it comprises actors from multiple fields and with distinct interests and logics, willing to negotiate some kind of coordination towards resolving around a specific issue or opportunity.

The multiplexity of the embeddedness (SIMPSON, 2015) of organizations in markets, industries, fields, and even in larger social domains (DEQUECH, 2013) lead to what organizational institutionalists called institutional complexity (GREENWOOD et al., 2011). What does that mean? It means that actors might experience distinct and even conflicting "set[s] of material practices and symbolic constructions – which constitutes its organizing principles –" governing their actions, that is, their underlying institutional logics[6] (FRIEDLAND; ALFORD, 1991, p. 248). Research started to explore institutional dynamics between two conflicting or cohabiting logics, such as care versus science logic in medical education (DUNN; JONES, 2010), and editorial versus market logics in the publishing industry (THORNTON; OCASIO, 1999). Later, studies recognized the possibility of organizations being influenced by "constellation of logics"

[6] Institutional logics approximate markets and institutions because the material practices are means of reification of the symbolic constructions (norms, rules, and beliefs) that were negotiated in the social arena of markets. It is noteworthy that as Greenwood, Hinings and Whetten (2014) stated, the original theoretical construction of the institutional logics aimed the core societal institutions. By and large, the organizational field became the locus of analysis of much of studies concerning institutional logics, but we are proposing to analyze the logics at a lower level of analysis, that is of markets.

(GOODRICK; REAY, 2011), such as the simultaneous influence of spirituality, medical, fitness, and commercial logic in the U.S. yoga market (ERTIMUR; COSKUNER-BALLI, 2015).

Research has also pointed out that institutional complexity, “as the subjective experience of logic contradictions by organizations, may support or hinder different kinds of institutional change” (MICELOTTA; LOUNSBURY; GREENWOOD, 2017, p. 1895). The efforts invested by authors for conducting institutional change through creation, maintenance, and disruption of institutions is known as institutional work (LAWRENCE; LECA; ZILBER, 2013; LAWRENCE; SUDDABY; LECA, 2011). In practice, as may be seen in Zietsma and Lawrence’s (2010) investigation of institutional change promoted in the British Columbia harvesting industry, institutional work takes place when three basic conditions are challenged: defined boundaries, established practices, and powerful actors. When institutional conflict arises, actors from the outside of the market may force to expand market boundaries and change current practices of dominant actors. These efforts may lead to institutional innovation, in which the market boundaries must be redefined, and new practices must be created in order to confer to markets a renewed status of institutional stability after the change.

Concerning the classic question from the sociology of markets, “where do markets come from”? (FOURCADE, 2007; WHITE, 1981) and taking our definition of markets as socially constructed institutional arenas of negotiated interests, we contend that markets are built through participants’ institutional work projects, be it for market creation (ALDRICH; FIOL, 1994), for market change (HSU; GRODAL, 2015), or market disruption intending the replacement for a new market[7] (LOWREY; ERZIKOVA, 2014). When endeavoring such efforts, social actors must consider that logics other than economy may influence action in market domains (DEQUECH, 2013), and that “different institutional complexes and principles of justification may clash in consequential ways even if individuals are not aware of the conflict” (GRANOVETTER, 2017, p. 186). In this regard, “markets draws strongly on the struggles between economic and social logics in society; markets are as much political arenas as they are economic realms” (BECKERT, 2009b, p. 259). Thus, we assert that markets may

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[7] Our understanding is compatible with Schumpeterian creative destruction (SCHUMPETER, 1934) caused by disruptive innovations. For a comprehensive review about Schumpeterian technological regimes and patterns of innovation, see Breschi, Malerba and Orsenigo (2000).

only function if their participants create an agreement towards markets' material and institutional infrastructures (HININGS; LOGUE; ZIETSMA, 2017) through achieving some sort of shared understandings regarding the multiple, coexisting and conflicting logics governing their actions (FAN; ZIETSMA, 2017; YORK; HARGRAVE; PACHECO, 2016). Such agreement demand making mutual concessions in constant negotiations held in the market arena, that is, through negotiation work (HELFEN; SYDOW, 2013; LOK; DE ROND, 2013).

This line of argument leads to the core of our thesis: the institutional work of market participants to socially define (a) the rules and norms underlying the economic and social transactions; (b) the infrastructure and resource allocation necessary for the functioning of the market; (c) the status and the roles played by each actor; and, (d) the perception of value of the goods and services that are going to be produced and traded in the marketplace, result in the negotiation of shared understanding making possible the governance and functioning of the market. By accommodating the multiple (cohabiting and conflicting) institutional logics underlying market transactions, the phenomenon of hybridization of markets may coalesce.

2.3 ANALYZING THE JUNGLES NOT THE TREES: FROM HYBRID ORGANIZATIONS TO HYBRID MARKETS

Current conversations regarding the phenomenon of hybridization have been taking organizations as the locus of discussion – social enterprises, in particular (BATTILANA; BESHAROV; MITZINNECK, 2017; GREENWOOD; HININGS; WHETTEN, 2014). Social enterprises are defined as companies which the main purpose is to pursue a social mission while maintaining some sort of commercial activity in order to gather the financial support necessary for its operation (BATTILANA et al., 2015). As depicted by Smith and Besharov (2019), social and business missions are intertwined and inseparable, functioning as guardrails in which organizations bump every time they face strategic tensions and experiment new sets of practices, preventing them of possible deviations from their hybrid condition towards a single mission (e.g. commercial only). However, considering our assumption that the hybridization is also inherent to contemporary markets, this section is aimed to shift the locus of analysis from social enterprises to markets. In this regard, we explore the

conceptual foundations from the sociology of markets and institutional theory presented up to here for understanding what hybridization is and why markets are the possible locus of hybridization.

First, it is useful to assume Battilana and colleagues' conceptualization of hybridization "as the mixing of core organizational elements that would conventionally not go together" (BATTILANA; BESHAROV; MITZINNECK, 2017, p. 138). The authors expanded their explanation asserting that hybrid organizations present identities, forms, and rationales that "violates institutionalized rules about what is appropriate and compatible." Why, then, hybrid organizational forms have been gathering so much attention from organizational scholars? Research have been showing that hybrid organizations are more likely to find novel and innovative ways of solving social problems in critical fields for society, such as clean energy production (JAY, 2013; YORK; HARGRAVE; PACHECO, 2016), employment and education, and health and wellbeing (VICKERS et al., 2017). Thus, hybrid organizations are said to have the ability to permeate multiple worlds by combining multiple organizational forms for attaining multiple goals and missions through their business operations (BATTILANA et al., 2015).

However, hybridization cannot be seen as a riskless effort. When investigating the impact of organizational hybridizing in the audience's perception of firms (start-ups) from the carbon nanotubes industry that combine science and technology logics, Wry, Lounsbury and Jennings (2014) show that organizations with a technology logic identity hybridizing towards a science one were more likely to loss venture capital attractiveness. Additionally, the opposite was true for start-ups hybridizing in the direction science-to-technology. This result is relevant for going beyond the traditional social-economic dichotomy and shows that moves towards specific directions may be harmful to organizations.

Moreover, we posit that the phenomenon hybridization may be translated to markets, given that the ubiquitous movement towards markets comprising multiple institutional logics such as commercial logic, community logic, and pro-environmental logic (e.g., MAIR; REISCHAUER, 2017) cannot go unnoticed. However, while in hybrid organizational forms the focus is on shifts in organizational identity and cognitive framing, through changes in structure, personnel, and narratives (SMITH, W. K.; BESHAROV, 2019; WRY; LOUNSBURY; JENNINGS, 2014), we contend that in hybrid markets, research must investigate how the permeability of logics other than the

economic one may lead to differentiation in terms of formal and informal rules exchange (regulation) between market actors (FLIGSTEIN; CALDER, 2015), in the resource allocation and material infrastructure of the marketplace (LOGUE, 2014; MCKAGUE; ZIETSMA; OLIVER, 2015), in the institutionalized standards of evaluation of goods and services (ASPERS, 2018; FLIGSTEIN, 2001), and in the shift in the roles (WHITE, 1981) and status position of actors in the market (PODOLNY, 1993; ZALD; LOUNSBURY, 2010).

The common point is that hybridization in both forums (organizations and markets) may lead the audience to wonder “what’s going on here” (WRY; LOUNSBURY; JENNINGS, 2014, p. 1313), putting their attention to logics other than a purely instrumental one (typical of traditional market exchange). Furthermore, as have been discussed insofar in organization studies, the source of hybridity is usually the conflict/combination between a market or commercial logic and another logic connected to social issues (exchange fields vs. issue fields, in Zietsma et al. [2017]) (e.g., BATTILANA; DORADO, 2010; DALPIAZ; RINDOVA; RAVASI, 2016; PACHE; SANTOS, 2013). Additionally, struggles, conflicts, negotiations, and potential contradiction between social values and markets (REICH, 2014) are also a source of hybridization in arenas such as globalization of education (ÇAKMAKLı; BOONE; VAN WITTELOOSTUIJN, 2017), energy production (YORK; HARGRAVE; PACHECO, 2016), and illegal markets (DEWEY; MÍGUEZ; SAÍN, 2017).

Another element of our analysis is the argument that market hybridization can be socially constructed by means of institutional work projects by certain market actors, specifically when considering those from actors to create or expand market boundaries and practices (ZIETSMA; LAWRENCE, 2010) that encompasses the likely distinct and conflicting interests of market participants. Such dynamic account of hybrid markets is a response to “[m]uch research [that] has depicted the elements of a hybrid as fixed, akin to two [or more] solid objects such as stones or bricks whose rigidity creates friction and resistance when they collide.” (SMITH, W. K.; BESHAROV, 2019, p. 29), what is aligned with the definition of markets presented insofar. These dynamics may be clearly observed when markets involve actors from different sectors of formal society, such as social, private, and public sectors (NICHOLLS, 2010; SMITH, S. R., 2010).

In this scenario, located at the intersection of interests of states, organizations, and citizens, the problem of markets goes beyond profit. For example, the creation of

dairy market in Bangladesh mentioned earlier, was led by a civil society organization (CARE NGO) and delivered both social and economic benefit, helping the state to alleviate poverty in the region and firms to increase their rents through scaling up their production (MCKAGUE; ZIETSMA; OLIVER, 2015). Another study has shown that leaders from social movement organizations (SMOs) played a key role in the creation of local markets in the U.S. adopting a localism logic, that is, advocating “co-location of production, distribution, and consumption in pursuit of environmental and social sustainability” in local communities (KURLAND; MCCAFFREY, 2016, p. 5). Finally, York, Hargrave, and Pacheco’s (2016) work about the wind energy field in Colorado show that logic hybridization at field-level takes place when actors are engaged in an effort to accommodate incompatible goals (economizing vs. ecologizing) and means to achieve them under shared governance arrangements.

Thus, in the next section, we present a theoretical framework that we propose for analyzing the process of hybrid market emergence in this doctoral dissertation. In this regard, we discuss the conceptualization of market hybridization and present theoretical elements that are said to contribute to the understanding of the process of market hybridization and the emergence of hybrid markets.

2.4 DISENTANGLING THE CONCEPT OF HYBRID MARKETS AND THE PROCESS OF HYBRIDIZATION

Hybrid markets are those in which the definition of formal and informal rules and norms underlying economic and social transactions (regulation), the infrastructure and resource allocation, the actors allowed to perform market exchanges and the roles performed by them, as well as the perception of value of the goods and services available in the marketplace (evaluation), are defined by logics other than a solely economic/commercial one, even if they seem to be incompatible at a glance. As we mentioned before, this process is socially constructed in the institutional arena of negotiated interests through negotiation work between market actors. This work is often “unreflexive and unintended, but just as often in ways that reflect people’s institutional awareness, their desires to affect institutional arrangements, and the skills and resources they marshal to achieve those desires” (HAMPEL; LAWRENCE; TRACEY, 2017, p. 559). The result of this process is the achievement of a shared

understanding of how the market is going to be governed (FAN; ZIETSMA, 2017), considering not only economic, but also social, environmental, and public outcomes as well (among others).

Given the definition of hybrid markets provided above, it is necessary to comprehend the key elements of institutional work related to market hybridization in a context of institutional complexity. Thus, considering Hampel, Lawrence, and Tracey's (2017, p. 583) concerns regarding "a much less developed appreciation of when, why and how networks of heterogeneous actors work together to shape institutions", we propose a framework for analyzing the work performed by the actors in terms of the process of market creation, maintenance, disruption, and change (LAWRENCE; LECA; ZILBER, 2013; LAWRENCE; SUDDABY; LECA, 2011), as well as the symbolic, material, and relational means adopted by them in these processes (HAMPEL; LAWRENCE; TRACEY, 2017). Our aim is not to provide a comprehensive explanation of the mechanisms and process that lead to market hybridization, but to present possible reasons that shall be further explored instead.

2.4.1 On the when(s) of market hybridization

Traditional markets are typically unitary and uncontested institutions. Market-logic is dominant, the institutional infrastructure is coherent and established (HININGS; LOGUE; ZIETSMA, 2017); and changes occur naturally in terms of competitive realms, e.g., market entries, market exits, changes in market positioning (GREVE, 1996; HAVEMAN, 1993), changes in the stock of organizational resources and capabilities (HENISZ; ZELNER, 2012), and launching of new products and services (CONTI; GAMBARDELLA; NOVELLI, 2013). However, markets may occasionally become contested when multiple logics permeate market traditions. Thus, when do markets hybridize? The answer to this question depends on the stage of development of a market during the process of change towards hybridization. As it was noticed by McKague, Zietsma, and Oliver (2015, p. 1087), "the stage of a market's development shapes the relative priority that should be attached to social and economic aspects, with social structuring predominating in earlier phases and durable economic exchange revealing itself in latter phases of market growth." Thus, the process of

hybridization for established markets are not expected to be equal than hybridization of emergent/nascent markets or than maturing and contested markets.

In established markets, the institutional work performed by actors that can lead to market hybridization can be divided into two distinct categories: the source of the efforts for change, that can be endogenous or exogenous to the existing market (ZIETSMA; LAWRENCE, 2010); and the kind of effort chosen by market actors to perform the institutional change (YORK; HARGRAVE; PACHECO, 2016). Endogenous changes take place when market participants see change as beneficial for them and work in order to guarantee the establishment of a new market order that allows them to explore strategic opportunities provided by the hybridization (DALPIAZ; RINDOVA; RAVASI, 2016; HSU; GRODAL, 2015). In the supply side, this assertion is in line with Jerry Davis's (2005, p. 488) argument that "[o]nce a practice proves profitable, whole fields can change their shape through the entry of newcomers and the restructuring of incumbents." For example, Alessi, an Italian kitchenware manufacturer, changed the market by embedding an art-logic to their production, transforming consumers perception of their products as more than just functional appliances, but as cultural symbols of art and design (DALPIAZ; RINDOVA; RAVASI, 2016). In Brazil, the market of cosmetics was hybridized when two manufacturers, O Boticário, in Curitiba, and Natura, in São Paulo, introduced a logic of environmental protection and green consumption in the market for beauty products in the 1990s (JONES, 2017).

Markets can also hybridize endogenously when the demand side pressure firms to change their offerings. For example, Dolbec and Fischer (2015) investigated how consumers engagement in online platforms such as Twitter, Tumblr, Instagram, Pinterest and Vine have led to changes in an established, yet contested, market: fashion. Fashion market was characterized by intertwined exchange (mass fashion, with a dominant commercial logic) and issue fields (haute couture, with a dominant art logic). However, the institutional work of engaged customers led the market to hybridize, since their participation in the market arena brought to the emergence of a new logic, called "logic of accessibility", in which the worth of a garment is not attached to its price or brand, but to how this garment is economically accessible, fashionable and wearable, no matter who produced it (DOLBEC; FISCHER, 2015). It is noticeable that the case of the hybridization of the fashion market is similar to the process depicted by York, Hargrave, and Pacheco (2016), as a developmental change, in which much

of the prevailing logics remain. This is supported by the evidence that “when avid online consumers endorse the emerging logic of accessibility, they are not attempting to unseat the logics of art or commerce. They are simply giving voice to a logic that makes sense to them given their experiences and perspectives” (DOLBEC; FISCHER, 2015, p. 1462).

Another possible source of endogenous market hybridization in established contexts is innovation. Firms can pursue the legitimation of new logics for achieving first-mover advantages over their peers. In this sense, when innovations are successfully legitimized, markets can hybridize because incumbent firms are likely going to follow the innovators to regain competitive advantage (FLIGSTEIN, 2013), reproducing both the dominant economic logic inherent to markets and the new logics inserted through innovation (be it environmental, social, aesthetic, or cultural). For example, in the early 1990s, after perceiving that lead was hazardous for human health and the environment, Hewlett-Packard developed “solders that are an amalgam of tin, silver, and copper, and even developed chemical agents to tackle the problems of oxidization and tarnishing during the soldering process” (NIDUMOLU; PRAHALAD; RANGASWAMI, 2009, p. 59). The firm championed the hybridization towards an environmental logic to the electronics market, what ignited a series of regulations such as the European Union’s Restriction of Hazardous Substances Directive in 2006 (NIDUMOLU; PRAHALAD; RANGASWAMI, 2009).

Exogenous market hybridization takes place when change is a consequence of institutional work from actors inhabiting outside the marketplace. Actors that can be considered outsiders include but are not limited to professional associations (GREENWOOD; SUDDABY; HININGS, 2002; SCOTT, 2008), state and government[8] (DOBBIN; DOWD, 1997; GUILLÉN; CAPRON, 2016), civil society organizations (MCKAGUE; ZIETSMA; OLIVER, 2015; YORK; HARGRAVE; PACHECO, 2016), advocacy groups (MAGUIRE; HARDY; LAWRENCE, 2004), boards and committees (FAN; ZIETSMA, 2017), and transnational organizations (ANSARI; WIJEN; GRAY, 2013). Outsiders’ work can lead to hybridization of markets when they successfully challenge current powerful actors. For example, York, Hargrave, and Pacheco (2016)

[8] States and governments are considered in the sociology of markets as components of markets (FLIGSTEIN; CALDER, 2015), however, they are traditionally considered actors from the field in institutional theory, being governed by their own state logic (GOODRICK; REAY, 2011; ZIETSMA et al., 2017). That is why we consider them as exogenous factors of market hybridization in this review.

shows that the energy market changed in the direction of hybridization when a group of actors from outside the market, pro-environmental social movement organizations, started to advocate in favor of the establishment of policies for the development of wind energy industry as a viable alternative for reducing environmental hazards that were caused by traditional energy sources (coal, oil, and gas, for instance). Powerful actors in the market, the leading service provider and the regulatory agency that was advocating for the maintenance of an economizing logic, witnessed the dilution of their power concentration and centralization with the increase in the number of stakeholders, adhering to the new hybrid logic that started to prevail in Colorado's energy market.

In emerging or nascent markets, the creation work is more likely to take place, resulting in market hybridization from the beginning. This kind of hybridization is more common when there is a lack of supporting institutional infrastructure, i.e. when markets operate under institutional voids (MAIR; MARTÍ; VENTRESCA, 2012). As an example of empirical examinations, Mair, Martí, and Ventresca (2012) show that when institutional arrangements of markets were absent in Bangladesh, hybridization occurred through the creation work of inclusive markets (with a strong social logic), which were intrinsically related to traditional market institutions (property rights and autonomy) and intertwined with community, religious, and political logics as well.

Moreover, despite being associated with least developed countries (MCKAGUE; ZIETSMA; OLIVER, 2015), hybridization of markets as results of institutional voids can also be found in developed economies. In the U.S., Abrams, Davis, and Moseley (2015) investigate the institutional work of a community-based organization (CBO) based in northern California for filling the institutional voids left by the state and corporate actors with the advent of the decay of harvesting market in the region. The CBO efforts led to the shift in the community from large-scale harvesting industry to stewardship and forest conservation and restoration services, associating the market with the community, social, and ecological logics. In this regard, the CBO "drew on the legitimacy it built as a pragmatic organization innovating creative solutions that met both ecological and social imperatives in a difficult operating environment" (ABRAMS; DAVIS; MOSELEY, 2015, p. 692).

Finally, innovation, that was discussed as a source of endogenous market change towards hybridization, can also be a source of exogenous market hybridization through creation work in emerging/nascent contexts. As an illustration of innovation in

the financial field that can lead to hybridization, there is the emergence of impact investing markets, that "involves investing in companies, organizations and funds with the intention of generating measurable social and environmental impacts as well as financial returns." (HININGS; LOGUE; ZIETSMA, 2017, p. 182). The creation work for legitimizing impact investing markets have been taking place by the Australian government for supporting social innovations that, despite being economically sustainable, also provides social and environmental value (LOGUE, 2014). Another example is the state-oriented but market-oriented creation of a market for endangered species protection bank in California (REA, 2017). The author findings suggest that the need for regulating environmental impacts of land developments led to an institutional work of state actors to create a new kind of hybrid market institution that combines state (authoritative power), environmental, and market logics (economic power).

2.4.2 On the why(s) of market hybridization

Most of this new reality for organizations and markets emanated from the fact that the contemporary world is fast-paced and ever-changing. As Stark (2009, p. 16) notices, institutionalists and economic sociologists "during the 1980s developed concepts of classificatory rules, scripts, and cultural taken-for-granteds to explain how organizations gain legitimacy to operate in stabilized institutional environments, today organizations in rapidly changing environments face the problem that their taken-for-granteds can soon be out-of-date." New logics constantly arise and gain prominence in society (HININGS; LOGUE; ZIETSMA, 2017) – especially social and environmental ones –, and as Meyer and Bromley (2013, p. 383) note, "in becoming legitimated and responsible actors, they [market actors] incorporate, and are interpenetrated with, all sorts of inconsistent rationalized elements of society." However, we claim that market as a central institution of society is not fated to fade away, because "the best-known form by which uncertainty is reduced is [still] perhaps the market" (ASPERS, 2018, p. 138). Why, then, do they hybridize?

For starting answering this question, we borrow the claims from York, Hargrave, and Pacheco (2016, p. 580) to state that when markets hybridize, they do not become a simple aggregate of elements prevenient from multiple logics, "but instead integrates the goals associated with previously incompatible logics through

specific material forms, practices, and arrangements that instantiate these goals." This excerpt is relevant for understanding that market hybridization is not equal to exorcising the economic goals of organizations nor to supplanting the market logic in favor of other hybridizing logic. In fact, it is accommodating ecological, community, social, cultural, and other logics, in the economic transactions held in the marketplace seeking the mutual benefit for the business, environment, and society (HOFFMAN; BADIANE; HAIGH, 2012). Thus, hybridization is similar to what Selznick (2008, p. 36) considered "a basic antinomy in moral experience: it is both other-regarding and self-regarding", since, in the same extent that organizations, customers, governments, gather economic value for themselves, they also provide value creation in other societal spheres that would not be possible by isolated actors alone (AHRNE; ASPERS; BRUNSSON, 2015; ROCKMANN; NORTHCRAFT, 2018).

For the profiteers (AHRNE; ASPERS; BRUNSSON, 2015), hybrid markets may provide opportunities for making even more profit at the same time they gather legitimation and become highly praised by the audience (DALPIAZ; RINDOVA; RAVASI, 2016; VORONOV; DECLERCQ; HININGS, 2013). And how is it possible? Research has shown that "[s]ocial disruptions are indicative of the demand for new cultural expressions and present 'ideological opportunities' that brand managers can tap into through new myths and cultural codes" (ERTIMUR; COSKUNER-BALLI, 2015, p. 57). The authors found that the U.S. yoga context, comprising commercial, spiritual, fitness, and medical logics, led to the creation of 10 billion dollars per year hybrid market. Furthermore, as shown in the study of German wine market (BECKERT; RÖSSEL; SCHENK, 2017), hybridization (in this case, towards a cultural logic) is rewarded because the audience is willing to pay a premium for getting the products aligned with the cultural symbolism they evaluate as relevant. While wineries could increase their economic profit by attributing higher prices to their products, wine consumers gathered cultural and social distinctions at the expense of economizing.

Another argument in this regard can be found in Nidumolu, Prahalad, and Rangaswami's (2009) work. The authors' study of 30 large corporations suggests that companies accommodating pro-environmental logic (in our terms, hybridizing) can decrease their costs, since they reduce productive inputs, improve their products, and end up more innovative, creating new market opportunities. Still, McKague, Zietsma, and Oliver (2015) state that embedding the creation of the dairy market with a social logic led not only to new market opportunities for the whole value-chain but also to the

improvement of the social outcomes for the community. Beyond providing actors with tools for gathering economic value, the creation of the hybrid market in Bangladeshi dairy industry led to poverty alleviation of a fragile population (mainly women), increasing the net income per household by 69%. Thus, a possible answer to the question of why markets hybridize is because hybrid markets may provide a balance between both worlds: they provide market actors with opportunities for increasing their economic outcomes and give value back to the social context the market is embedded in, be it reducing environmental hazards (YORK; HARGRAVE; PACHECO, 2016), alleviating poverty conditions (MCKAGUE; ZIETSMA; OLIVER, 2015), providing cultural experiences (BECKERT; RÖSSEL; SCHENK, 2017; DALPIAZ; RINDOVA; RAVASI, 2016), or even strengthening community relations (ABRAMS; DAVIS; MOSELEY, 2015; KURLAND; MCCAFFREY, 2016).

States and governments also take advantage of market hybridizing. First, as we argue before, hybrid markets may become a solution for filling institutional voids left by the lack of official institutions (ABRAMS; DAVIS; MOSELEY, 2015; MAIR; MARTÍ; VENTRESCA, 2012). Thus, civil society's pressure for improvement in social, environmental, cultural, or other spheres of social life, are relocated from the state to market actors. For example, the U.S. case of the species conservation bank (REA, 2017) present that when the Californian hybrid market proved to be successful, the support from environmentalists to the new practice of negotiating species credits increased. As a result, the pressure over the state to create new hazard offsetting sites reduced, as well as decreased the rates of lawsuits, and saved land developers' money and reputation.

2.4.3 On the how(s) of market hybridization

After investigating theoretically when and why markets hybridize and why hybrid markets emerge, we must now put our efforts in comprehending how the process of market hybridization takes place. For understanding when and why markets hybridize, we relied on the outcomes of institutional work (HAMPEL; LAWRENCE; TRACEY, 2017) of actors that purposefully modify market institutions toward hybrid forms, especially through endogenous and exogenous work (ZIETSMA; LAWRENCE, 2010) for institutional creation, maintenance, disruption, and change (LAWRENCE;

LECA; ZILBER, 2013; LAWRENCE; SUDDABY; LECA, 2011). It is relevant to recall that following Hinings, Logue, and Zietsma's (2017, p. 185) rationale, market changes toward hybridization is not an automatic process that takes place when logics other than economic/commercial one arise, they "are attached to particular groups of actors, and come with their own relational channels, bases for legitimacy, and power and governance structures, and are materialized in various elements of institutional infrastructure." Thus, for proposing an explanation of how markets hybridize, we rely on Hampel, Lawrence, and Tracey's (2017) classification of the means adopted by market actors (that is, symbolic, material, and relational means) to work toward market hybridization in four core elements of our concept of markets: *regulation*, *allocation*, *classification*, and *evaluation*.

As Hampel and colleagues' (2017, p. 570) suggest, symbolic work is the one "that uses symbols, including signs, identities and language, to influence institutions;" material work "draws on the physical elements of the institutional environment, such as objects or places, to influence institutions;" and relational work "is concerned with building interactions to advance institutional ends."[9] However, it is noteworthy that symbolic, material, and relational works are strictly interrelated. Because these three kinds of work are part of markets institutional infrastructure (HININGS; LOGUE; ZIETSMA, 2017), when actors engage in one kind of work (e.g. symbolic) that leads to market hybridizing, this shift in the configurations of logic in the market affects its remaining relational and material elements.

Regulation is the first element of our conceptualization of markets that can be changed through institutional work for hybridization. Regulation is the definition of formal and informal rules that govern economic and social transactions in the marketplace and sanctions to prevent defiant behaviors (BECKERT, 2009b; FLIGSTEIN; CALDER, 2015; PHILLIPS; TURCO; ZUCKERMAN, 2013). As York and colleagues (2016) show in the case of the ballot for approving the Amendment 37, renewable energy regulation in Colorado led to market hybridization because the SMOs involved in the institutional work adopted persuasive symbolic work strategies,

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[9] While most of institutional work research is concentrated in the symbolic work (HAMPEL; LAWRENCE; TRACEY, 2017), material and relational work are yet to be further explored We posit that economic sociology in general and sociology of markets specifically may provide useful insights in the other two types of institutional work, especially considering studies on embeddedness (GRANOVETTER, 2017) in relational work and performativity in material work (see BEUNZA; FERRARO, 2019).

such as narratives and discourses, to convince the legislators and civil society that Colorado needed “cleaner air and cheaper energy”, that is, a combination of both economizing and ecologizing logics (YORK; HARGRAVE; PACHECO, 2016, p. 595).

Concerning material work on changing regulation aspects in hybrid markets, Purtik and Arenas (2019) show how actors use material objects (product innovation / new technology development) to change regulation and foster the hybridization of markets towards an environmental logic (green innovation) in Western European and the U.K. mobility and energy industries. The authors’ findings suggest that innovating actors willing to work for the legitimation of hybrid markets needed to provide users with knowledge and skills necessary to use new green technologies and to support their adoption after proving that green products would be as functional as traditional ones. Pilot studies and field trials provided the material experience demanded to implement a pro-environmental logic in traditional markets (PURTIK; ARENAS, 2019). Hewlett-Packard case we mentioned above is another example; HP used the development of new chemical elements for solders as material work for changing market regulation in an environmental-friendly direction, delegitimizing the practice of using lead solders in the electronics market (NIDUMOLU; PRAHALAD; RANGASWAMI, 2009).

An example of relational work can be found in the study of Abrams, Davis, and Moseley (2015). The authors narrate how WRTC (Watershed Research and Training Center), the CBO responsible for the creation of the hybrid market for sustainable harvesting in the rural northern California, developed and accessed relationships they built with the staff of the federal regulatory agency, congressional staff, and groups of interest in order to work towards an institutional change that could bring social and economic development for the community. This hybrid market involved the community in the supply of value-added wood products produced by the local workforce from small-diameter timber as well as a wide range of services of stewardship and forest conservation activities, such as wildfire risk management and river basin restorations. According to the authors, before the relational work performed by the CBO to legitimize this new market, “local Forest Service staff would commonly tell the WRTC that its proposed changes were simply not possible due to agency regulations or culture” (ABRAMS; DAVIS; MOSELEY, 2015, p. 690).

The second element of our understanding of market hybridization is market infrastructure and resource allocation (see LEE; STRUBEN; BINGHAM, 2018).

Allocation of resources is key for market creation and change since it involves the majority of rational decision-making that actors must make. However, as the Nobel laureate in Economics, Herbert Simon notes, “[w]e have no automatic formulas, no numbers to compute, that will tell us just how much emphasis we should put on improving the environment and just how much on meeting our energy needs” (SIMON, 1983, p. 84) nor how much we should compromise economic goals and “make concessions to partially conform to the demands of proponents of incompatible logics” (YORK; HARGRAVE; PACHECO, 2016, p. 582). Moreover, research suggests that an adequate market infrastructure can provide firms with confidence and certainty about the stability of market transactions (LEE; STRUBEN; BINGHAM, 2018), conferring them the foundations for resource allocation in the collective action needed for the development of the hybrid market infrastructure as a whole.

We found evidence from McKague, Zietsma, and Oliver’s (2015) findings that the creation of the hybrid dairy market in Bangladesh demanded symbolic, material and relational work in the creation of market infrastructure and resource allocation from the nongovernmental sponsoring organization. Concerning symbolic work, the NGO built a narrative conciliating economizing and socializing logics, putting their efforts in shifting local farmers mindset that saw cattle “as ‘savings’ or ‘insurance’ rather than income-producing assets and thus invested only as much as required to keep the cattle alive” (MCKAGUE; ZIETSMA; OLIVER, 2015, p. 1068). Additionally, CARE resorted to material work by showing the improvement of the physical aspect of the farmers’ cows, as well as investing in new technologies and practices that added market value to the milk products (e.g. digital fat testing machine and the cattle health card). By convincing farmers to invest their resources in quality feeding, breeding, and veterinary health, they proved that farmers could increase milk production and household income.

The authors also show the relational work of the NGO for building the market infrastructure for concomitantly attending both economic and social interests (MCKAGUE; ZIETSMA; OLIVER, 2015). After creating a relational network between farmers, they started to bring in the value-chain actors, such as milk collectors and distributors, feeding, veterinary medicine stores, and even large multinational pharmaceutic industries (e.g. Novartis and Pfizer) to the meetings for engaging them with the farmers’ business. Finally, CARE also brought the government agency for livestock services to their side, overcoming the relationship struggles and barriers they found at the beginning of the project. In sum, it is possible to notice that hybridizing

markets are the result of extensive negotiation and efforts for introducing logics other than market logic in the allocation of resources and market infrastructure.

The third element of the definition of hybrid markets that may change due to institutional work is classification. Classification in hybridizing markets is regarded as "to the renegotiation of existing institutional arrangements to define who can access and participate in markets and under which conditions" (MAIR; MARTÍ; VENTRESCA, 2012, p. 833). In other words, classifying market actors takes into account the roles to be performed by each market actors (WHITE, 1981) and their relative position in the marketplace (PODOLNY, 1993). Furthermore, hybrid markets are expected to emerge through the expansion of the market boundaries (ZIETSMA; LAWRENCE, 2010). In this sense, as we mentioned before, actors that are not expected to be involved in market transactions (i.e., outsiders) or that plays peripheral roles in the marketplace become important players by championing the integration of new practices and logics.

Symbolic work to change in the roles and status positions of actors is carried out, for example, in the case of the fashion market (DOLBEC; FISCHER, 2015). The hybridization of the market towards an "affordability" logic is result of the emergence of new categories of actors (engaged online consumers and emergent categories of professionals, such as fashion bloggers and street photographers) that challenged traditional actors from both prevailing logics (market logics of the mass production and art logic of the *haute couture*) by sharing and curating in the social media visually appealing and economically accessible "looks" for ordinary customers. Another example was the creation of new hybrid markets in Bangladesh (MAIR; MARTÍ; VENTRESCA, 2012; MCKAGUE; ZIETSMA; OLIVER, 2015), which demanded symbolic work to convince that actors that were traditionally not allowed to participate in market exchanges (women, in general) that those actors are fundamental for improving the social and economic spheres of the community around dairy activities.

Material and relational work can also be a source of change towards hybridization in markets' classification. Dalpiaz, Ravassi, and Rindova's (2016) findings suggest that Alessi used their products designed by renewed artists as material work through physical means (objects) to embed the household market with a cultural (art and aesthetics) logic. They did so "by selecting elements from the logic of cultural production and combining them in varying configurations with the logic of industrial manufacturing to reconceptualize what it produced (product categorization), how (value attributes), why (goals), and for whom (referent audiences)" (DALPIAZ;

RINDOVA; RAVASI, 2016, p. 368). Alessi also put their efforts into relational work. In this regard, they engaged actors attached to the art logic such as museums and art critics for playing the role of carriers of the art logic to the household market, creating a new category of product in this sector (applied art).

The last element for exploring how hybrid markets emerge is evaluation. Thus, we believe that shifts in the institutionalized standards of evaluation of goods and services available in the marketplace and in the audience's perception of value (ASPERS, 2018; FLIGSTEIN, 2001) are necessary for a market to hybridize. In this concern, value plays a key role in the hybridization of markets because "[t]he more the value of products becomes detached from the fulfilment of purely functional needs, the more they depend upon symbolic assignments of value that must be constructed by market actors" (BECKERT, 2009b, p. 256). In Selznick's terms (2008, p. 86), hybrid markets are a way to overcome "economic myopia" because "preferences are evaluated rather than merely accepted as given". This is relevant for organizations because nowadays (more than ever before) "[p]references are examined for irrationalities and distortions; business activity is assessed for its integrity and effects on other spheres, as when the public interest in a nurturing environment is neglected."

We exemplify how evaluation can influence hybrid markets in symbolic, material, and relational means through the case of hybrid wine markets in the Canadian province of Ontario (VORONOV; DECLERCQ; HININGS, 2013). In this market, evaluation of organizations and their goods and services is highly attached to cultural and aesthetic logics (BECKERT; RÖSSEL; SCHENK, 2017). Voronov, DeClercq, and Hinings (2013, p. 1590) express the complexity involved in the evaluation of hybrid market actors by suggesting that "there was no unique alignment between particular logics and specific audience groups, but rather the aesthetic and market logics, and their underlying scripts, were salient in the communication with each of audience groups, albeit to varying degrees." The efforts invested by market actors from Ontario to infuse aesthetic logics in the market and changing audience's perception of the value of the wine produced locally is challenging since the authors show the extent in which wine market is dominated by wineries from traditional *terroirs*, such as the French Burgundy and Bordeaux.

The authors (VORONOV; DECLERCQ; HININGS, 2013) show that market actors engage in institutional work adopting distinct (but complementary) scripts attached to specific logics in the hybrid market. For example, wineries engage in

symbolic work to show to the audience their adherence to an aesthetic logic. To do so, they “enter competitions, attempt to place their wines on prestigious restaurants’ wine lists, bring the wines to the attention of other wine producers, all in an attempt to earn artistic acclaim” (VORONOV; DECLERCQ; HININGS, 2013, p. 1582). However, they also engage in symbolic work to reinforce market logic when they communicate to the audience that buying their wines does not confer only aesthetic value, but also a fair economic value. Ontario wineries also engage in material work through enacting a farmer script for improving the evaluation of wineries from the *terroir*. Voronov and colleagues (2013) narrate that wineries promote events to provide to their audience hands-in-the-dirt experiences, in which they (customers, critics, and even elite r*estauranteurs*) are able to work in the field collecting grapes along with the wineries’ workers.

Concerning relational work, Voronov, DeClercq, and Hinings’ (2013) findings suggest that wineries form partnerships with other market actors to reinforce both aesthetic and market logics. For example, the authors present evidence that wineries collaborate with elite restauranteurs by selling their products with a reduced price, producing wines for attending specific needs of the restaurants (according to the type of food, for instance), or even granting them access to an exclusive or limited edition of wines. Relational work is also identified in the relationship developed with wine critics, since “[t]hey ultimate guardians of the aesthetic logic in the wine industry and, arguably, possess more power than any other group of actors in legitimizing (or not) a winery’s efforts”, at the same time that they “are not opponents of, and are not unconcerned with, market logic.” (VORONOV; DECLERCQ; HININGS, 2013, p. 1587). Furthermore, wine critics are also gatekeepers or intermediaries of the access of Ontario wineries to prestigious restaurants wine menu.

2.5 SUMMING-UP THE THEORETICAL FRAMING

Up to this point, we were able to show a gap in the institutional theory and sociology of markets research in what regards to how institutional complexity and work can lead to the hybridization of existing contemporary markets or to the emergence of hybrid markets. Our review shows that although both streams of literature can provide the tools for analyzing the emergence of hybrid markets, the systematization of

knowledge and empirical investigation of an integrative analytical framework of market hybridization are yet to be achieved. Through this research, we sought to address the former by proposing a formal framework for analyzing either existing hybrid markets or the creation of them. Moreover, the empirical analysis conducted in this provides a further assessment of the later, allowing us to expand our knowledge on market hybridity in contemporary society, as well as for understanding the nuances inherent to our empirical setting in which these markets are embedded in.

Our review led to a formal definition of hybrid markets as socially constructed arenas of negotiated interests, in which the rules and norms that underlies economic and social transactions, the infrastructure and resource allocation, and the roles played by market actors, and how firms and their goods and services are evaluated in the marketplace, are influenced by multiple, coexisting and conflicting logics from social realms other than market (such as social, environmental, cultural, aesthetic logics, for instance). Still, we posit that the institutional work of market actors or from outsiders to introduce new logics to market transactions can become a source of change towards market hybridization.

After presenting our understanding of what hybrid markets are and propose the possible sources of market hybridization, we show the need to shift the attention from the usual locus of analysis of current research on hybridization from hybrid organizations (BATTILANA; BESHAROV; MITZINNECK, 2017; SMITH, W. K.; BESHAROV, 2019) to hybrid markets. Thus, we argue that while research in hybrid organizations focus on organizational identity and cognitive framing (SMITH, W. K.; BESHAROV, 2019; WRY; LOUNSBURY; JENNINGS, 2014), for studying market hybridization we need to investigate how logics other than the market one lead to changes in the four core elements of markets: regulation, that is, formal and informal norms and rules of exchange, allocation of resources and market infrastructure, classification of actors as pertaining to the marketplace and in the roles played by them, and the evaluation of market actors by their peers and by the audience. In **Table 1** we show a comparison between traditional and hybrid markets in terms of evaluation, allocation, classification and evaluation.

Furthermore, we departed from the call for the understanding of when, why, and how actors work towards shaping institutions (HAMPEL; LAWRENCE; TRACEY, 2017), focusing specifically in the phenomenon of market hybridization. Our review suggests that answering when markets hybridize depends on two main factors. The

first is the market's stage of development (MCKAGUE; ZIETSMA; OLIVER, 2015). We show that in established contexts, actors are more likely to engage in change and disruption work to embed the market with conflicting/competing logics, while nascent/emergent one may demand a creation work effort from actors championing the emergence of a hybrid market. The second factor to be analyzed is the source of efforts to change market conditions. In this regard, market hybridization may take place by means of endogenous or exogenous efforts (ZIETSMA; LAWRENCE, 2010). Endogenous efforts are performed by insiders, such as changes led by the supply (through innovation, for instance) or demand side of the market. Exogenous market hybridization is said to occur when change is resulting from institutional work carried out by market outsiders, such as civil society organizations, advocacy groups, state and government.

TABLE 1 – COMPARING TRADITIONAL AND HYBRID MARKETS

	Traditional market	**Hybrid market**
Regulation	Market-oriented logics play the main role in the regulation of the market. Laws, norms, and rules of transactions are created to avoid competitive-based misconducts (e.g. dumping), but their concern with non-economic issues is limited.	Logics other than market-oriented ones (e.g. environmental or green, social, aesthetics) are relevant for regulating the market. Beyond fair competition, market organizations are also expected to avoid harms or misconducts to the wider social realms.
Allocation	Resources and infrastructure are allocated to provide market organizations with a competitive advantage in order to maximize their rents. The allocation of the resource to other ends is limited to the legal obligation of doing so (e.g. oil companies mitigating the risks of the oil spill in the environment).	Allocation of resources and infrastructure are taken into account the return on realms other than pursuing economic profit (e.g. reducing environmental harms, taking people out of poverty condition, expanding other people cultural capacity).
Classification	Classification of market actors is basically competitive-based (i.e., in terms of price and quality of products or services). Traditionally, firms are allowed to operate in the market if they have the technical and financial capacity to effectively do so. Actors with non-economic logics are usually neglected in typical market transactions.	Market boundaries are expanded to accommodate outsiders (actors that are not expected to be involved in market transactions or that play peripheral roles in the marketplace). These new players end up becoming part of the market when the observance of new practices and logics (e.g. environment protection) become as important as the technical and financial capacity to operate in the marketplace.
Evaluation	The audience evaluates market organizations considering institutionalized functional standards of	The evaluation of market actors starts to take into consideration the impact of firms' operation and their goods and

	goods and services (basically a cost-benefit rationalization). Thus, market actors are perceived as valuable if they can deliver products or services with a fair alignment of quality and price. The impact of market actors in realms other than competitivity is not taken into consideration.	services beyond an economic frame of reference. Thus, the audience's perception of value is infused with logics from non-market realms. The cost-benefit analysis shifts from an individual level to a wider societal level (e.g. beyond satisfying one's needs, the goods and services must reduce environmental hazards or promote positive social impact in the community).

SOURCE: The authors (2020)

The next question we addressed so far is why markets hybridize. We show that hybridization of markets can provide actors with opportunities for reducing their costs, gaining legitimacy, and even improving their evaluation by the audience. Furthermore, market actors can gather access to resources available for supporting hybridizing efforts. Citizens and civil society benefit with the improvement of their quality of life, be it through poverty alleviation (social logic) or reduction of environmental hazards (environmental logic), for example. We also posit that states and governments benefit from hybridization because private actors can fulfil institutional voids left by them, relocating exogenous pressures from the state to the market. As we state it, hybrid markets can present a balance between both worlds, because the adherence of market actors to seemingly incompatible logics can even reinforce their economic outcomes, and in consequence, the market logic (VORONOV; DECLERCQ; HININGS, 2013). Thus, we believe hybridization of markets can bring mutual benefits for the business, environment, and society (HOFFMAN; BADIANE; HAIGH, 2012).

Finally, our review shows how do markets hybridize. We base our arguments on the classification of means adopted by actors to change markets towards hybridizing (HAMPEL; LAWRENCE; TRACEY, 2017). In this concern, we claim that hybridization of markets takes place through the symbolic, material, and relational work for changing market formal and informal regulation, allocation of resources and market infrastructure, as well as the classification of actors allowed to be part of market exchanges, and the evaluation of market actors by the audience (see **Table 2**). In this concern, actors may resort to language, discourse, narratives as symbolic work; devices, technology, practical experiences as material work; and training, engagement of outsiders, and partnerships as relational work.

TABLE 2 – INSTITUTIONAL WORK FOR MARKET HYBRIDIZATION

	Regulation	Allocation	Classification	Evaluation
Symbolic Work	Use of discourse and narratives to hybridize markets' formal and informal rules of transaction exchanges (York & Hargrave, 2016)	Use of rhetorical tools to change market actors' decisions towards hybridization in resource and infrastructure allocation (McKague et al., 2015)	Boundary work of markets' insiders or outsiders to champion new practices performed by peripheral or new actors that challenge established, or traditional actors attached to the old traditional market logic (Dolbec & Fischer, 2015)	Change the market audiences' perception of value regarding the hybridizing logic through emphatic communication of the adherence and relevance of the hybridizing logic to the markets, as well as showing status improvements and performance awards (Voronov et al., 2015)
Relational Work	Use of lobbies, cooptation, relationships and other kinds of relational resources to hybridize markets' rules of exchange (Abrams et al., 2015)	Creation or changes in the value-chain to accommodate market actors that are aligned to a hybrid market logic (McKague et al., 2015)	Adoption of endorsement strategies or actor engagement for inserting agents that can work as carriers of the hybridizing logic (Dalpiaz et al., 2016).	Use of close relationships with critics, media, customers, and even with competition to show the value inherent to the hybridizing logic (Voronov et al., 2015)
Material Work	Use of objective means such as product innovation or technological disruption to hybridize markets' regulation (Nindolu et al., 2009; Purtik& Arenas, forthcoming)	Foment of investments in physical infrastructure and R&D for increasing the value to be added by hybrid markets' products (McKague et al., 2015)	Introduction of material objects (e.g. products) to reinforce the hybridizing logic in the detriment of the traditional or established market products (Dalpiaz et al., 2016)	Introduction of the audience in the material objective experience to shift their perception of value by showing the hybridizing logic "in-the-works" (Cartel et al., 2019; Voronov et al, 2015).

SOURCE: The authors (2020)

Moreover, in this research, we expect to consider oppositional efforts to hybridization since in established markets are said to be greater and igniting maintenance work from current dominant and powerful actors. For example, in the fashion market, Dolbec and Fischer (2015) portray the efforts of actors from traditional

haute couture (i.e. Dolce & Gabbana) to delegitimate the carriers of the emerging affordability logic in the market. We also discuss further how market actors can respond to hybridization of markets. Adoption of distinct scripts when interacting with different audiences (VORONOV; DECLERCQ; HININGS, 2013), decoupling (MEYER; BROMLEY, 2013), and creative compliance (THIEMANN; LEPOUTRE, 2017) to hybrid regulation can be helpful for exploring these matters.

3 RESEARCH METHODS

In this chapter, we show the methodological procedures adopted for operationalization of our research question, as well as the underlying epistemological, ontological, logical assumptions we assumed in this research. Furthermore, we present how we assessed and observed the methodological rigor according to the standards widely accepted by scholars aligned with our assumptions.

3.1 THE RESEARCH PROBLEM

We present in the last chapter the theoretical gaps in the literature regarding hybridization of markets. Given the gaps we have shown in the theory, this doctoral dissertation research aims to answer the following research problem: **How institutional complexity and institutional work performed by social actors can lead to the emergence of a hybrid market in the context of urban innovation in transport systems?**

3.1.1 Research questions

What were the actual urban innovations that had occurred in the development of the bus rapid transit system?

Who were the main actors involved in the process of development of the bus rapid system?

What are the underlying logics of the market that have emerged from the development of the bus rapid transit system?

What kind of institutional work was held to embed logics other than market logics towards the emergence of the market surrounding the bus rapid transit system?

How did the process of emergence of the hybrid market has unfolded in the implementation of the bus rapid transit system?

3.1.2 Analytical categories

Hybrid markets

Conceptual definition: Hybrid markets are those in which the definition of formal and informal rules and norms underlying economic and social transactions (regulation), the infrastructure and resource allocation, the actors allowed to perform market exchanges and the roles performed by them, as well as the perception of value of the goods and services available in the marketplace (evaluation), are socially constructed and defined by logics other than a solely economic/commercial one.

Empirical definition: We analyzed market hybridization by the extent in which the market that emerged from the bus rapid system development is oriented not only by market logics, but by other conflicting or adjacent logics as well (such as environmental, social, or civic logics). The operationalization was through the in-depth interviews with research informants and archival material

Institutional logics

Conceptual definition: Institutional logic is “a set of material practices and symbolic constructions – which constitutes its organizing principles and which is available to organizations and individuals to elaborate” (FRIEDLAND; ALFORD, 1991, p. 248).

Empirical definition: We captured institutional logics through a pattern inducing approach, that is, we have identified the “sets of behaviors or practices that reflect the influence of particular guiding logic(s) (REAY; JONES, 2016, p. 450), “which are revealed through language, practices, and manifested in symbols and materials” (REAY; JONES, 2016, p. 442) manifested in the narratives of research informants and archival material.

Institutional work

Conceptual definition: Institutional work is “the purposive action of individuals and organizations aimed at creating, maintaining and disrupting institutions” (LAWRENCE; SUDDABY, 2006, p. 215), “it depicts institutional actors as reflexive, goal-oriented and capable; it focuses on actors’ actions as the center of institutional dynamics; and it strives to capture structure, agency and their interrelations” (LAWRENCE; LECA; ZILBER, 2013, p. 1024).

Empirical definition: We have identified institutional work efforts of social actors towards hybridization by means of, “first, symbolic work that uses symbols, including signs, identities and language, to influence institutions; second, material work that draws on the physical elements of the institutional environment, such as objects or places, to influence institutions; and third, relational work that is concerned with building interactions to advance institutional ends” (HAMPEL; LAWRENCE; TRACEY, 2017, p. 570), captured in the in-depth interviews with research informants and archival material.

Institutional complexity

Conceptual definition: Institutional complexity is reflected in “situations where organizations experience a multiplexity of different pressures from a plurality of institutional logics” (GREENWOOD et al., 2011, p. 357).

Empirical definition: We have operationalized institutional complexity by identifying in the in-depth interviews with research informants and archival material, “the number of logics and the degree of incompatibility between them” in the markets that emerged from the bus rapid transit system. While “[t]he former implies that complexity is importantly determined by the sheer number of logics at play — the higher the number of logics, the greater will be the complexity facing an organization. The latter implies that complexity is amplified by the divergence between prescribed goals and means, and by their relative specificity” (GREENWOOD et al., 2011, p. 334).

3.1.3 Other relevant definitions

Markets

Conceptual definition: “Markets are socially constructed arenas where repeated exchanges occur between buyers and sellers under a set of formal rules and informal understandings governing relations among competitors, suppliers, and customers. These rules and understandings guide interactions, facilitate trade, define what products are produced, sometimes constitute the products themselves, and provide stability for buyers, sellers, and producers” (FLIGSTEIN; CALDER, 2015, pp. 1-2).

Urban innovation

Conceptual definition: “Urban innovation should be understood as innovative practices within urban environments with the aim of improving those environments. […] Urban innovation tackles problems that are concentrated in a specific geographical area that is densely populated and filled with a range of social functions” (MEIJER; THAENS, 2018, p. 365).

Bus rapid transit system

Conceptual definition: Bus rapid transit system is “a bus-priority mode featuring high-capacity vehicles with rubber tyres, often operating on dedicated rights of way (that is, segregated corridors) with busway alignment, intersection priority, off-board payment and level boarding” (FERBRACHE, 2019, p. 2)

Material work

Conceptual definition: Material work is the kind of institutional work that “draws on the physical elements of the institutional environment, such as objects or places, to influence institutions” (HAMPEL; LAWRENCE; TRACEY, 2017, p. 570).

Symbolic work

Conceptual definition: Symbolic work is the kind of institutional work “that uses symbols, including signs, identities and language, to influence institutions” (HAMPEL; LAWRENCE; TRACEY, 2017, p. 570), that is, resorts on rhetoric tools, images, symbols, discourse, to change institutional orders.

Relational work

Conceptual definition: Relational work is the kind of institutional work that “is concerned with building interactions to advance institutional ends” (HAMPEL; LAWRENCE; TRACEY, 2017, p. 570), that is, is the kind of institutional work that is based upon the social relationships between social actors in order to influence institutions.

3.2 ONTOLOGICAL, EPISTEMOLOGICAL, AND LOGICAL ASSUMPTIONS

As for the reader, as for the writer, making clear statements about the ontology, the epistemology, and the logic behind of research is important. The researcher's assumptions are the baseline of every research; they inform the researcher him(her)self and the academic community concerning how a research problem come into existence and how they are to be addressed scientifically. Thus, it is relevant to bear in mind that "ontology and epistemology come in packages, and thus serve as a second consideration in the choice of methods. Researchers must be reflexive about such packages, as otherwise there is a potential for a mismatch between ontology and epistemology when the methods employed to explore phenomena are not suited for addressing the ontological positions implicit in the questions raised" (GARUD; BERENDS; TUERTSCHER, 2018, p. 19)[10].

If on the one hand ontology is regarded as our assumptions on the nature of being and existence in the social world (that is, how we see the world "out there"), on the other hand, epistemology is defined as the way through which we build and use our knowledge about the ontologically defined phenomena (that is, how we know and can know about the world we see) (GIOIA; CORLEY; HAMILTON, 2013; JENNINGS; HOFFMAN, 2017; LOCK; STRONG, 2010). The logic, in turn, "is the nature of the relationship between theory and research, in particular, whether theory guides research (known as a deductive approach) or whether theory is an outcome of the research (known as an inductive approach)" (BRYMAN, 2012, p. 19).

Given these definitions, I am[11] based on Bryman's (2012) understanding of the fundamental ontological and epistemological positions to locate myself in this spectrum before presenting the methods that we have adopted in this research. The author presents two main contrasting ontological traditions: objectivism and constructionism; two main contrasting epistemological assumptions: positivism and interpretivism; and two main logical streams of theorization: deductive and inductive research. Table 3

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[10] The number of the page cited refers to the location of the full quotation in the preprint version of the chapter provided by the authors.

[11] It is worthy of note that this section reflects my worldviews, and not my supervisor's assumptions. So, in this section alone I am shifting from a third-person narrative to a first-person narrative instead for the sake of fairness to her onto-epistemological self.

shows what Bryman (2012) considers the traditional onto-epistemological orientation and alignment.

TABLE 3 – BRYMAN'S ONTO-EPISTEMOLOGICAL ALIGNMENT

Ontology, epistemology, and logic alignment		
Ontological orientation	Objectivism	Constructionism
Epistemological orientation	Natural science model, in particular, positivism	Interpretivism
Principal orientation to the role of theory in relation to research	Deductive; testing of theory	Inductive; generation of theory

SOURCE: Adapted from BRYMAN (2012, p. 36)

Concerning the ontological assumption, I am oriented by a **constructionist ontology**. This is because I see the world as a social construction of actors embedded in the social world (BERGER; LUCKMANN, 1967), what leads me to believe "that people make sense of their experiences through lenses or frameworks provided by their contexts and communities, and meanings and interpretations are negotiated within them" (GRANQVIST; KALLIO; NISSILÄ, 2018, p. 265). The social constructionist ontology is consistent with my understandings on the relationship between social actors and institutions, as well as for the relationship between organizations and their environment (e.g. fields, markets, industries), which are represented in the research problem stated earlier in this chapter.

Furthermore, I assume an **interpretivist epistemology**, which "is defined here as research that systematically constructs scientific theory and concepts (knowledge) as 'second order' interpretations based on inductive and abductive analysis of members' actual common sense or 'first order' concepts and actions and meanings" (GEPHARD, 2018, p. 34). The interpretivism as epistemology makes sense for me in this research because I am committed to privilege the social actors' understandings about their social contexts, to giving voice to their own account of the social phenomena (GEPHARD, 2018), and to "co-construct an object of inquiry together with informants", given that "there are multiple points of view and interpretations of what, in this case, a field or a market consists" (GRANQVIST; KALLIO; NISSILÄ, 2018, pp. 264-265).

Finally, regarding the orientation to the role of theory in relation to the research I am adopting an **inductive logic** of reasoning, “which emphasizes the interpretation of patterns inherent in empirical data” (SUDDABY; HARDY; HUY, 2011, p. 291) instead of trying to fit the data into theoretically developed hypotheses. The strengths of inductive reasoning lie in the fact that “[i]nductive theorizing grounded in data can broaden the researchers’ epistemological frame with longer leaps than hypo-deductive logic based on quantitative data, thereby yielding completely novel ideas” (BANSAL; SMITH; VAARA, 2018, p. 1190).

However, while acknowledging that most research labelled as inductive research theories follow and abductive logic (GEHMAN et al., 2018; GRANQVIST; KALLIO; NISSILÄ, 2018; RHEINHARDT et al., 2018), I am committed to adopt what Denny Gioia called “an approach of willful suspension of belief concerning previous theorizing” (GEHMAN et al., 2018, p. 291), so that I can avoid imposing my own previous theoretical assumptions into the research informants’ account of the phenomena of hybrid market emergence.

3.3 RESEARCH DESIGN

After addressing the onto-epistemological assumptions behind this doctoral dissertation, we present the research design crafted for conducting this investigation. It is worthy of note that we sought to achieve the theory-method package fit (GARUD; BERENDS; TUERTSCHER, 2018; GEHMAN et al., 2018), that is, we tried to match our research design to our ontology and epistemology, to the camps in which we make our contributions (sociology of markets, institutional complexity and work, and innovation), and to the research question we answer at the end of this research endeavor (how institutional complexity and institutional work performed by social actors can lead to the emergence of a hybrid market in the context of urban innovation in transport systems?).

We have adopted a **qualitative single case study** strategy as our main research method. We have chosen to work with qualitative data because it “means appreciating the richness of phenomena by considering their relational (e.g., the bits and pieces constituting activities) and temporal (e.g., sequences, patterns and temporal experiences of those involved) contexts” (GARUD; BERENDS;

TUERTSCHER, 2018, p. 7), something that would be very difficult to achieve using traditional quantitative methods (LANGLEY; ABDALLAH, 2011). Furthermore, qualitative data provided us with the adequate tools to trace the actions, the meanings, and the materiality behind the emergence and changes towards hybridization that occurred in the market under investigation (GRANQVIST; KALLIO; NISSILÄ, 2018).

Concerning the research strategy, we have adopted the case study. In this regard, Mills, Durepos, and Wiebe (2010, p. xxxii) define case study as a research strategy whose characteristics comprehend: (a) “a focus on the interrelationships that constitute the context of a specific entity (such as an organization, event, phenomenon, or person)”; (b), the “analysis of the relationship between the contextual factors and the entity being studied”; and (c) “the explicit purpose of using those insights (…) to generate theory and/or contribute to extant theory”. We also note that the case study has become one of the most popular research strategies among the qualitative scholars in the management camp (PIEKKARI; WELCH, 2018).

However, alike scholars interested in the variance-based (nomothetic) case studies using multiple comparative cases (EISENHARDT, 1989), we are more interested in understanding the hybridization phenomena through a process-based case study restricted to an idiographic single case (GARUD; BERENDS; TUERTSCHER, 2018; LANGLEY; ABDALLAH, 2011). Considering the fact that both market emergence and change and societal challenges such as urban transport are complex topics of research (GRANQVIST; KALLIO; NISSILÄ, 2018; OZCAN; HAN; GRAEBNER, 2018), our decision to focus on a single case study design relied more on the strengths of the single case approach than on the weaknesses of comparative multiple cases approach.

Regarding those strengths, we consider that single cases are advantageous because (i) they can provide “an in-depth understanding of complex organizational phenomena from a variety of perspectives over time”; (ii) “they allow researchers to take advantage of unusual access to a phenomenon that may not be easily observable to outsiders”; (iii) the case “may be an instantiation of a rare phenomenon or process for which multiple cases may not exist”; and (iv) they result in a “fine-grained level of detail that cannot be achieved through multiple cases or other methods” (OZCAN; HAN; GRAEBNER, 2018, pp. 93-94).

Other decisions regarding research design were the level, unity, and object of analysis. As Granqvist and colleagues state, “[c]hoosing the level of analysis is

important because it has a major impact on what literatures and explanations are relevant and what theoretical framings can be adopted" (GRANQVIST; KALLIO; NISSILÄ, 2018, p. 269). Thus, after careful consideration, we defined **market** as our research **level of analysis**. Considering our understanding of markets as socially constructed institutional arenas of negotiated interests, our **unity of analysis** was **relational**, that is, we aimed at the relationship between social actors for understanding the institutional work towards the emergence of a hybrid market. The **object of analysis** in our research was the **bus rapid transit market originated from the development of urban innovations in the city of Curitiba**, Brazil.

Finally, concerning the **temporal dimension** of the research, we have adopted a **longitudinal** design. The choice for engaging in longitudinal research was due to the fact that market emergence and change is a process that occurs over time (GRANQVIST; KALLIO; NISSILÄ, 2018). Thus, we argue that only longitudinal data could provide enough evidence for us to understand the processes (LANGLEY et al., 2013) that unfolded during the change towards market hybridization. In this regard, the timeframe adopted in this research is from 1965 until 2005.

3.3.1 Case selection

The case selection is one of the most challenging tasks in qualitative research. However, as Pratt (2016) shows, there are three alternative means for selecting your case: the problem-in-the-world-first approaches, the context-first approaches, and the theoretical-understandings-first approaches. In the problem in the world first approach, the researcher starts trying to find the answer to a "real-world" problem (e.g. understanding the process of emergence of innovation from the inside (GARUD, 2008), and then craft a theoretical problem for finally selecting a research context. One can also start with a theoretical understanding of a given phenomenon, and then trying to find an appropriate real-world problem and a research context. Another possibility is that "[t]here may be times when you find a fascinating context and then need to move to find the "problem in the world" and the "theoretical" problem" (PRATT, 2016), that is, through a context-first approach.

We introduced this section with Pratt's understandings on how research questions and contexts are crafted to show that, in our case, we started with a context-

first approach. We had an interesting context (innovation in Curitiba's urban transit system that led to the development of what is known as a bus rapid transit system) in which one of our research group members have access to the field. After defining that the Curitiba's bus rapid transit would be the case, we were concerned to find a real-world problem (in our case, we became intrigued by understanding how market actors deal with multiple underlying logics in the marketplace, such as the need to be "green"). Finally, we tried to make sense of this real-world problem by means of our theoretical framing (what this is a case of (GRANQVIST; KALLIO; NISSILÄ, 2018), which we believe is a case of institutional complexity and work - Chapter 2).

However, we also argue that our single case selection is not given by chance. According to Ozcan and colleagues, "the rationale for single case research should be to satisfy one of three conditions: (1) the case is an unusual phenomenon, (2) the case has not been accessible to researchers before, or (3) the case can be observed longitudinally" (OZCAN; HAN; GRAEBNER, 2018, p. 93). Our singe case satisfies at least two of the three conditions stated above: the Curitiba's bus rapid transit development and change is a one-of-a-kind event that is hard to be replicated elsewhere due to the complexity and long-term character of the process' time-frame (it started in the 1970s and it is still ongoing nowadays); and the case can indeed be observed longitudinally, since we can resort to archival and media data, as to informants that were involved in the bus rapid transit development and chances at the time they had occurred.

3.3.2 Data collection

The data collection procedure started with **field access**. Field access is indeed a matter of concern in every qualitative research (SAUNDERS; TOWNSEND, 2018). Ozcan, Han, and Graebner (2018) address how one can obtain field access in single case qualitative studies. They argue that the main strategy for accessing the field is through authors' personal ties to key informants of the case study setting (e.g., previous employment, personal relationships, research-related relationships, previous consultancy jobs, etc.). However, one can also obtain access to the field by means of industry conferences or and short introductory emails describing the benefits of participation in the research. We resorted on the authors' **personal ties** to the

informants of the Curitiba's transport system management (one member of the research team has previous employment relation with URBS for more than 10 years[12]). We have also sent **invitational emails** to those who we did not have access through personal ties.

In what regards to effective data collection, collected two out of the three types of data that are possible to be gathered in single case qualitative research designs: interviews, archival data, and observations (GIOIA; CORLEY; HAMILTON, 2013; OZCAN; HAN; GRAEBNER, 2018). Given the longitudinal nature of our research, the type of data that presented the better "fit" to our research design were the interviews and the archival data (REAY et al., 2019), since they could help us "to obtain both retrospective and real-time accounts by those people experiencing the phenomenon of theoretical interest" (GIOIA; CORLEY; HAMILTON, 2013, p. 19), that is, hybrid market emergence. We have decided to rule out the collection of observation data, that is, they were not the primary focus of data collection, because we have taken for granted that "the people constructing their organizational realities are 'knowledgeable agents,' namely, that people in organizations know what they are trying to do and can explain their thoughts, intentions, and actions" (GIOIA; CORLEY; HAMILTON, 2013, p. 17).

Moreover, based on experienced qualitative scholars' advice, we have chosen to gather our data using **semi-structured interviews** because this is the ideal type of interview for inductive qualitative research (GIOIA; CORLEY; HAMILTON, 2013; LANGLEY; ABDALLAH, 2011; OZCAN; HAN; GRAEBNER, 2018). Most of the interviews represented **retrospective** data because this kind of data "refer[s] to empirical materials that interpret past events at a later point in time from the perspective of current understandings", that is, "in interviews informants look back and tell what happened as they recall it at the moment of the interview - with certain bracketing of what are meaningful developments in the flow of actions and events" (GRANQVIST; KALLIO; NISSILÄ, 2018, p. 269). We justify this choice because when "conducting longitudinal interviews are not an option, authors can still trace the

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[12] Ann Langley have credited Denny Gioia and colleagues for developing a "rather innovative insider-outsider perspective that truly optimizes access to richness, in which one member of the research team has been an active participant in the events studied" (LANGLEY; ABDALLAH, 2011, p. 214).

unfolding of a phenomenon longitudinally by conducting interviews with informants close to the phenomenon and in real time" (OZCAN; HAN; GRAEBNER, 2018, p. 99).

Operationally speaking, conducted **24** semi-structured (or thematic) interviews[13] with **23** different social actors between April 2016 and December 2019. The interviewers followed a list of themes, topics, and questions that we wanted to be covered by the informants (see *Appendix A – Interview protocol*[14]). However, the overall format of the interviews was still supposed to be somewhat flexible, first, because "not all themes will be relevant for the informant and hence it is necessary to allow room for new themes and issues to emerge" (GRANQVIST; KALLIO; NISSILÄ, 2018, p. 271); and second, because we wanted to avoid the risk of "imposing our [theoretical] preordained understandings on their experience" (GIOIA; CORLEY; HAMILTON, 2013, p. 17). The interviews were audio-recorded (**with only one exception**) and transcribed *verbatim* upon participants' consent, and field notes were taken during and after the interviews (OZCAN; HAN; GRAEBNER, 2018). The interviews totaled **2.138 minutes** of audio records and **770 pages** of textual transcriptions (double-spaced archives).

Granqvist and colleagues also state the "[f]inding informants is an emergent process in its own right" (GRANQVIST; KALLIO; NISSILÄ, 2018, p. 271). Thus, the next issue that needed to be addressed is **who** to interview. Considering that "the characteristics of suitable participants are likely to need to be, at least in the early stages of the research, defined more broadly and driven subsequently by emergent theory" (SAUNDERS; TOWNSEND, 2018, p. 481), we started by identifying potential key informants that were more likely to have vivid memories of their experiences during the process of creation, development, and changes in the Curitiba's bus rapid system. The list of actors includes former city mayors, former IPPUC presidents, architects and urban planners, city directors (related to transport, communication, planning, finance and administration), executives of private organization involved in the process, and actors from consulting firms.

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[13] A list of research interviews is available in Appendix B.

[14] We were not expecting that the interview protocol presented in the appendix would be a final version. This is because giving the inductive character of this doctoral dissertation, we have adapted and adjusted the protocol on the fly (GIOIA; CORLEY; HAMILTON, 2013), so it could give us some flexibility to add questions that emerged or drop out other that did not seem to help answering our research question.

During the first set of interviews, we have also adopted a snowball “sampling” technique for gathering data of key actors which we did not have prior access to or that we were not able to identify as key informants in the first data screening (GRANQVIST; KALLIO; NISSILÄ, 2018; OZCAN; HAN; GRAEBNER, 2018). This technique consists of “ask[ing] the informants for introductions to their colleagues or other individuals who are knowledgeable or close to the phenomenon” (OZCAN; HAN; GRAEBNER, 2018, p. 98). As predicted by Ozcan and colleagues (2018), snowballing helped us levering initial contacts with the target participants as well as provided us with legitimacy to follow-up introductions. Furthermore, we have also identified and contacted possible participants while they were emerging as key actors during the analysis of archival and secondary data (e.g. media articles, documents, reports, etc.).

Concerning the number of interviews we have collected (the **how many**), we considered the following guideline: “The principle you must adhere to is covering both breadth and depth of the topic area” (REAY, 2014, p. 96). Furthermore, the choice on how many interviews to conduct (n=24) was also dependent on the amount of other substantial data sources available to us (e.g., archives, media, meeting minutes, contracts, etc.) (OZCAN; HAN; GRAEBNER, 2018). In this concern, “rather than predetermining all sampling and data collection elements”, we decided to “allow their[our] data to play an integral role in guiding their[our] study” (RHEINHARDT et al., 2018, p. 527). Thus, we made new interviews until the point where our data seemed to be enough to answer our research question (that is, it got to a saturation point).

Another source of data we have collected was **archival** data. This kind of data was relevant for complementing the interviews, first because “[a]rchival materials, such as news stories and reports, provide ‘real-time’ accounts of how certain events were understood” (GRANQVIST; KALLIO; NISSILÄ, 2018, p. 265); and second, because “[a]rchival data can also be a great source of second hand quotes by individuals associated with the case from interviews, speeches, or even emails” (OZCAN; HAN; GRAEBNER, 2018, p. 101). In the case of our research, archival data was especially helpful in the cases where the informants are no longer be alive (OZCAN; HAN; GRAEBNER, 2018), because, since the temporal framing of our study starts in the 1960s, many informants were already seniors by the time of the bus rapid transit system development.

Thus, the types of archival data we have collected were media articles from the local and national newspapers (**614 news articles** totaling **808 pages** of data)[15], websites related to the bus rapid system in Curitiba, previous works (books, videos, films, conference speeches – such as TED talks –, peer-reviewed articles, press releases), documents publicized in public libraries, minutes of meetings, emails exchanges, official correspondences, procurement contracts, R&D agreements, official reports, and also internal documents provided by the organizations involved (**98 documents** totaling **8.550 pages** of data)[16]. Furthermore, we had also taken into consideration the Granqvist, Kallio, and Nassilä's recommendation that "[a]s a general rule of thumb for the use of all archival materials, it is important to consider who produced the data and when, and the original purpose of the data. Careful reflection of these issues enables the researcher to make informed decisions on the role and value of different kinds of data sets and how best to use them in developing findings and constructing arguments" (GRANQVIST; KALLIO; NISSILÄ, 2018, p. 272). **Table 4** summarizes the data collected and used for analyzing the research question of this doctoral dissertation.

TABLE 4 – SUMMARY OF THE QUALITATIVE DATA COLLECTION

Interviews	24 semi-structured interviews with 23 actors from public and private organizations.	2.138 minutes of audio and 770 pages of *verbatim* transcribed text
News articles (media coverage)	614 news articles from national and local outlets.	808 pages of media coverage
Documents	98 official and unofficial documents (reports, projects, Master Plans, testimonials, maps, etc.	8.550 pages of archival data

SOURCE: The authors (2020)

[15] The complete inventory of news articles (media coverage) collected is reported in Appendix C. The vast majority of news articles were gathered in the physical archives of the "Biblioteca Pública do Paraná – Public Library of Paraná" and of the "Casa da Memória da Fundação Cultural de Curitiba – House of the Memory of the Cultural Foundation of Curitiba") as well as in the digital archives of the "Biblioteca Nacional" (National Library).

[16] The complete inventory of archival and documentary data collected is reported in Appendix D.

3.3.3 Data analysis

The data analysis is also a part of the ontology-epistemology-method fit we have been concerned so far. Thus, as this doctoral dissertation is an interpretivist, inductive, and qualitative research, the approach that we adopted for analyzing data was the **grounded theory** (GIOIA; CORLEY; HAMILTON, 2013), which "comes from an interpretivist tradition and is commonly used to show the in-depth analysis of a single case" (REAY, 2014). This method is regarded as a powerful approach to "interpretive modelling of informant understandings over time" (LANGLEY; ABDALLAH, 2011, p. 212), that fits the bill for answering our processual research question. Moreover, as have been pointed by Reay and colleagues, "it seems particularly suitable for research based on interviews and archival data" (REAY et al., 2019, p. 7), which represents the majority type of data we have worked with.

The grounded theory was also helpful because it provides "new or revised understanding of the social processes that relate, in this case, to field and market emergence" (GRANQVIST; KALLIO; NISSILÄ, 2018, p. 275) and change, which was the focus of the analytical efforts for answering our research question. Furthermore, it is also used as an effective form to capturing institutional phenomena inductively by means of a pattern-inducing approach (REAY; JONES, 2016) (that is, in our case, the hybridization of markets).

As Gioia asserts, this "approach is meant to systematize your thinking while providing the wherewithal to discover revelatory stuff" (GEHMAN et al., 2018, p. 263). But, in practice, how have we done it? Following the sequence proposed by Langley (1999), we started our analysis by constructing a chronological field narrative to help us making sense of data and also to build a temporal structure to our data analysis process. This step was also useful for us to "document who did what, and when, and who said what, and when" (DELMESTRI; GREENWOOD, 2016, p. 515). After building the field narrative, the next step of the analysis was temporal bracketing, which consists of the "decomposition of data into successive adjacent periods [which] enables the explicit examination of how actions of one period lead to changes in the context that will affect action in subsequent periods" (LANGLEY, 1999).

While structuring our data in terms of temporality, we were iteratively coding and collecting additional data. Our coding procedure was based on Kreiner (2016), in which presumes that the researcher "formally, consciously, and reflexively brings

existing theory into the coding process, even into the earliest stages of data analysis" (KREINER, 2016, p. 352), that is, we performed both in-vivo and theory coding simultaneously and iteratively, building emerging theory that is both groundbreaking and connected with existing scholarly conversations (KREINER, 2016; MURPHY; KLOTZ; KREINER, 2017). In this approach, called twin-slate method, open (first-order) and axial (second-order) coding takes place simultaneously, that is, they are not considered separate stages or levels of research (KREINER, 2016; RHEINHARDT et al., 2018). Our in-vivo coding resulted in **256 codes**, and after performing successive open and axial coding, iterating our data with data and out data with theory, we got to **31 first-order** categories and **10 second-order** categories.

The last step of our systematic process of coding and analysis was confronting the emergent themes against our analytical categories[17] to merge them into aggregate dimensions (GIOIA; CORLEY; HAMILTON, 2013), in which we have "a clear sense of the developing relationships among categories and their related themes" (GIOIA et al., 2010, p. 8). The aggregate dimensions are the core elements of our emerging theory to explain *how institutional complexity and institutional work performed by social actors can lead to the emergence of a hybrid market in the context of urban innovation in transport systems*, guiding the presentation of our research findings (LANGLEY; ABDALLAH, 2011). Our coding resulted in **4 aggregate dimensions** (allocation work, regulation work, classification work, and evaluation work). At this stage, we made an analytical effort to locate our emerging categories and themes into the fields temporal framing (three stages presented in Chapter 4.2 of this doctoral dissertation) in order to build a process model of institutional complexity and work for hybrid market emergence.

After "a highly disciplined coding and analysis process", the key output of the research, or its "central artifact" (LANGLEY; ABDALLAH, 2011, p. 214), is what Denny Gioia calls a **data structure** (CORLEY; GIOIA, 2004; GEHMAN et al., 2018; GIOIA; CORLEY; HAMILTON, 2013; RHEINHARDT et al., 2018). The data structure is an analytical tool that shows how data analysis proceeded from the large amount of raw data we had until reaching the theoretical abstraction represented by our aggregate categories. As Denny Gioia argues, it "not only allows us to configure our data into a

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[17] The analytical categories are detailed on the section 3.1.2 (page 55) of this doctoral dissertation.

sensible visual aid, it also provides a graphic representation of how we progressed from raw data to terms and themes in conducting the analyses — a key component of demonstrating rigor in qualitative research" (GIOIA; CORLEY; HAMILTON, 2013, p. 21). We reproduce a representation of our coding data structure in Figure 1.

FIGURE 1 - DATA CODING STRUCTURE

SOURCE: The authors (2020)

The coding of data was supported by the computer-assisted qualitative data analysis software (CAQDAS) **NVivo 12 Pro**, so would not be overwhelmed by the amount of data and also because it helps "to keep track of emerging categories" (GIOIA et al., 2010, p. 8). Furthermore, we have also decided to use NVivo because inductive research is an iterative process, that is, it is a constant back-and-forth between data, codes, and emerging theory, which usually leads to additional data collection (BRYANT; CHARMAZ, 2007; LANGLEY; ABDALLAH, 2011). Thus, computer-based assistance, while not doing the data analysis itself, provided us with a more effective path for performing it.

3.4 METHODOLOGICAL RIGOR

Conducting rigorous inductive qualitative research is not an easy task; but even harder than that is showing and convincing the audience that one did it the right way. This is due to the lack of a boilerplate for evaluating this kind of research (PRATT, 2009), specifically because, in qualitative research, rigor is in the (onto-epistemological) eye of the beholder (RHEINHARDT et al., 2018). Thus, borrowing Denny Gioia's terms, we as researchers were committed to doing it the "full Monty" (GEHMAN et al., 2018, p. 293), that is, conducting a systematic inductive qualitative study "from day one". In other words, "rigor is best achieved when threaded through every phase of a study, from start to finish; from the design of an interview protocol and selection of informants to the final written account that faithfully adheres to informants' accounts while providing a compelling story" (RHEINHARDT et al., 2018, p. 520)

In this regard, we divided this section into two segments: *ex-ante* rigor and *ex-post* rigor. For achieving (and showing) *ex-ante* rigor, we were mostly concerned with research design and data collection. In the research design area, crafting sharp and well-specified research questions provided us with a solid foundation for building and adapting our interview protocol (GIOIA; CORLEY; HAMILTON, 2013; PRATT, 2016). The next concern is with an adequate sampling method since the "selection of informants and/or data sources constitutes the foundation of rigorous qualitative research" (RHEINHARDT et al., 2018, p. 526). Furthermore, *ex-ante* rigor has helped

us gathering high-quality data in terms of both breadth and depth, what was essential for effectively grounding our theoretical claims after analyzing it (REAY, 2014; REAY et al., 2019).

We have also observed *ex-post* rigor based on the set of criteria exposed by Alex Rheinhardt, Glenn Kreiner, Denny Gioia, and Kevin Corley (2018): credibility, transparency, reflexivity, and transferability. For achieving credibility, we aimed at convincing the audience that our research was systematically conducted and that its outcomes are plausible and defensible by showing them our data structure (GEHMAN et al., 2018; GIOIA; CORLEY; HAMILTON, 2013). Regarding transparency, we are presenting thoroughly descriptions of data sources, analysis, and findings (BANSAL; CORLEY, 2011). Furthermore, we "treat transparency like an opening of the shades so that readers can envision the entire detailed research process, including important decisions made along the way and justifications for those decisions" (RHEINHARDT et al., 2018, p. 523).

The next criterion is reflexivity, which was addressed "to provide an honest account of how they [researchers] moved from point A to point B, perhaps including how they themselves influenced (or 'biased') their findings" (RHEINHARDT et al., 2018, p. 525). We are aware of the relevance of reflexivity in inductive research, thus, we created dedicated spaces, times, and contexts in which we can be reflexive during research progress (MAUTHNER; DOUCET, 2003). In practical terms, we have adopted practices such as peer debriefing, taking extensive field notes, and making reflexive notes on our thoughts and feelings regarding the research process to mitigate possible biases in the research outcomes.

Finally, we are aware of the importance of the transferability of our research. Transferability is the analogue of generalization to deductive-oriented research (LINCOLN; GUBA, 2013; RHEINHARDT et al., 2018), that is, the extent to which a "case generates concepts or principles with obvious relevance to some other domain" (GIOIA; CORLEY; HAMILTON, 2013, p. 24). Thus, we followed Ann Langley's recommendation that to "achieve this [transferability], you need to include as much richness as possible in your account, so that the readers themselves can see to what degree the story you are telling finds resonance" (GEHMAN et al., 2018, p. 295).

3.4.1 Boundary conditions

Ann Langley also suggests including a section on “boundary conditions” so that one can make clear how the idiosyncratic features of the case can potentially influence research findings, improving, then, the transferability of the research (RHEINHARDT et al., 2018). Boundary conditions are the who, where, and when of a theory (BUSSE; KACH; WAGNER, 2017), that is, it is making clear statements on the possible settings in which applications of our emerging theory can be plausible, because “[t]here is no theory of everything, so every valid theory always pertains to a certain subject matter domain” (LOCKE, 2007, p. 884).

Considering that defining boundary conditions “cannot always be done at the outset, but it needs to be done eventually” (LOCKE, 2007, p. 884), we are presenting how we defined the primary boundary conditions of this doctoral dissertation considering the outcome of our emerging theory. Thus, we expect our research to apply to emerging or changing markets in which there is not a clear dominance of a pure-type market logic (what would be the case of the commodities market). However, we also understand that our emerging theory cannot be transferable right away to contexts in which a market logic plays no role at all.

Furthermore, our theory is based on an investigation of urban innovations in the transport system of a medium-to-large city in South America, where the concept of public urban transit may differ considerably when compared to its North American or European peers or smaller towns elsewhere. We also would like to state that the core of innovations in the public urban transit system in this case study was held in a period of democratic restabilization in Brazil, what may have influenced the power balance in the market arena in favor of the public actors and, thus, affected the pathways of the markets.

3.4.2 Limitations

It is worthy of note that, “[f]rom a method point of view, although a given method may be suitable to many tasks, this does not mean that it is suitable to every task” (GEHMAN et al., 2018, p. 298). So far, we have been concerned with showing the tasks we were able to accomplish in our research, but none have been told about

the tasks that our methods were not suitable for. Thus, in this section, we decided to make clear upfront the limitations imposed to us by our ontology-epistemology-methodology package (GARUD; BERENDS; TUERTSCHER, 2018; GEHMAN et al., 2018). We made this decision with the belief that having a clear understanding of the limitations of this package is helpful, (a) for us to become aware of it and (whenever possible) trying to overcome it; and (b) to the audience to read our findings knowing beforehand their shortcomings.

First and foremost, although we consider a wide empirical generalization or a multiple and cross-case comparison scientifically relevant, one should not expect to get it from the findings of this research. This is because given the nature of our interpretivist orientation, “explanations are relevant to the context of the study, but it is not known (and it is not the point of the study) whether findings are generalizable beyond the specific context”, and second, because “the design of a pattern-inducing study is tailored to each particular case, making it difficult to make comparisons across cases” (REAY; JONES, 2016, p. 451). We have chosen grounded theory because it is suitable for achieving something analogous to a theoretical generalization or transferability (GIOIA; CORLEY; HAMILTON, 2013), however, we cannot generalize the “whole thing” nor compare it with other cases in detriment of the depth of our analysis.

However, despite being a useful tool for achieving more transferable emerging theories, the grounded theory itself is not exempt from limitations. Langley and Abdallah (2011) suggest that this approach can sometimes lead to a certain over-abstraction that harms a complete understanding of how things actually occur in reality. They also warn that “the coding and categorizing process may generate a certain decontextualization; to achieve generality, the chaining and interplay of particular events may sometimes become lost in this process” (LANGLEY; ABDALLAH, 2011, p. 217). We were aware of such limitation during the analysis of data and we tried to compensate such limitation with a thorough description on both how the aggregate dimensions resonate our empirical context and what are the boundary conditions of our emerging theory.

The last limitation we address so far refers to the timing of the fieldwork (GRANQVIST; KALLIO; NISSILÄ, 2018). In this regard, we must recognize that we have studied a phenomenon that is already in the past (the emergence of the hybrid market has already happened). Thus, we rely heavily on retrospective data instead of

real-time, what poses as a challenge concerning “how to gain a sufficiently fine-grained understanding of occurrences that have taken place in the past, taking into consideration the role of post-hoc rationalizing” (GRANQVIST; KALLIO; NISSILÄ, 2018, p. 263), what ends up limiting the level of depth and detail we were able to capture in this study (LANGLEY; ABDALLAH, 2011). However, as we described above (*3.3.2 – Data collection*), we sought to address this limitation by gathering as much real-time archival data as we could.

3.5 EMPIRICAL SETTING SUMMARY

The empirical setting of our research is the market that emerged after the development of the bus rapid transit system (BRT), in the city of Curitiba, Paraná, Brazil. This system is known as a cost-friendly alternative to cost-heavier systems such as the light-rail transit systems or the heavy-hail transit systems (e.g. subways or metro trains). Thus, it has been adopted by more than 200 cities all over the world, most of them located in the less developed countries like Brazil, Indonesia, Colombia, and China. This empirical setting is interesting because the BRT as an urban innovation was created and developed in Curitiba, what gave us access to research and understand how this innovative transport system came to fruition before starting to be spread in other cities.

The BRT system came to life in 1974 by the hand of the architect and urban planner Jaime Lerner (a potential institutional entrepreneur), considered the father of the BRT. At a TED conference in 2007 (https://www.ted.com/speakers/jaime_lerner) he coined the term “*metronization*” of the bus for explaining the system he designed (along with his fellow urban planners at the Municipality IPPUC – Research Institute for Urban Planning of Curitiba) to promote a Master Plan for ordered growth to the city, inducing the development in the direction of the suburbs instead of centered in downtown (as usual in emerging economies metropolis). As remarked by Gustafsson and Kelly (2016, p. 82), “[a]t its core, Curitiba exemplifies how the integration of land use planning, transportation infrastructure, and environmental sustainability efforts can enable a city to meet the needs of its expanding population and mitigate the negative effects of urban growth”.

But how did they do it? Through what is known as the Structural Axis, or Trinary System (Figure 2). The city was planned to grow throughout three major axes, North-South, East-West, and Boqueirão (the name of a neighborhood). In each one there is a two-way BRT-dedicated lane (red), two one-way slow-speed and slow-traffic lanes for cars, bicycles, and pedestrians (green), and other two one-way fast-speed (downtown-suburbs, and suburbs-downtown, in blue). In the structural axis, the Municipality induced the construction of high-density commercial and residential buildings (all with mandatory dedicated space for commercial and service purpose fronting onto the main commercial corridors).

FIGURE 2 – STRUCTURAL AXIS / TRINARY SYSTEM

SOURCE: URBS (2017)

The original idea was to use the exclusive bus-lanes as means to guarantee the lands necessary for the future implementation of a subway system without costly land expropriations since Curitiba did not have the financial resources for the construction of subway systems at the time. However, the success of the project and

pressures from actors from the bus industry, the concessionaires of lines (bus operators), and real estate industry, pushed for the evolution of the system (exploratory interview data). The buses developed with the specific purpose of mass transport started to be produced specifically in Curitiba by 1974 by Marcopolo and Cummins (in the beginning, in the 1970s, they were truck chassis adapted for transportation of people, mainly bought from Mercedes-Benz).

FIGURE 3 – BOARDING SYSTEM

SOURCE: URBS (2017)

In the 1990s, pressures from the Municipality made Volvo and partners (such as Marcopolo) for adapting and creating buses that could allow the boarding in stations (tubes), where passengers would pay in advance and would be at the same level of the doors of the buses (Figure 3). Furthermore, McDonough (2017, p. 47) summarized Curitiba's case of bus "metronization" for an article recently published in Scientific American:

> "Because a subway or heavy rail system would cost far too much, he [Lerner] instead asked Volvo to make 270 Swedish articulated buses, done within the city, which gave residents jobs. The city hired locals to build aboveground, street-side bus shelters, or *tubos*, from which people could travel anywhere for a flat fare. Instead of riders paying with a token as they boarded a bus, a slow process, Lerner had them prepay when entering the *tubo* platform, so when the bus arrived, they could get on quickly, reducing loading time and making the entire system efficient".

Concomitantly, Curitiba's leadership advocated a sustainability logic that was legitimatized in its Master Plan, emphasizing the environmental care and social responsibility held by the Municipality. In the 1990s, Curitiba was declared the ecological capital of Brazil, and according to data from a research recently conducted

at the Santa Fé Institute (BRELSFORD et al., 2017), Curitiba is still the most sustainable Brazilian metropolis; “[d]ue in part to BRT (as well as Curitiba 's long-standing ban on polluting industries), Curitiba boasts one of the country's lowest rates of ambient pollution” (Lubow; U.S. Federal Transit Administration, in Gustafsson & Kelly [2016, p. 84]). This logic pressured the industry to expedite the pace of technological development of buses with greener technologies (cf. Table 4), transforming Curitiba in a live-laboratory for testing clean-energy technologies in urban mobility projects.

TABLE 5 – CHRONOLOGY OF GREEN URBAN TECHNOLOGY POLICIES IN CURITIBA’S BRT

1974	Creation of the 1st world BRT system in Curitiba, idealized by the Mayor Jaime Lerner; buses co-engineering between Volvo Brazil (Curitiba) and Volvo Sweden
1980–1994	Follow-up of BRT system and buses’ chassis improvements (bi-articulated buses, engines, suspension), also in Curitiba-Sweden Isolated biodiesel experiments at the University of Parana´—UFPR (raw materials, engine resistance)
1995–1999	First bus pilot tests with MAD8 and MAD11 blends (alcohol, diesel and biodiesel) Players: City Transport Company (URBS), City Environment Department (SMMA), Volvo Brazil, Robert Bosch Brazil (Curitiba), Private bus operators, Technology Institute of Paraná—Tecpar (Curitiba), Scania Brazil and Mercedes-Benz (São Paulo). Biodiesel supplied by the American Soybean Association (USA)
2000–2005	Follow-up: 20 buses run experiments on diverse biofuel blends, namely 5% and 20% biodiesel (B5, B20). Increasing Brazilian biodiesel production (State of Paraná)
2000	The Mayor of Bogotá launches “Transmilenio”, the world’s largest BRT. Buses and solutions are supplied by Volvo’s local production and development network in Curitiba, monitored by the Swedish Headquarters
2002	The 1st Brazilian biodiesel seminar is held in Curitiba. Tecpar contracts new blend testing assignments with the Federal Government and launches the Brazilian centre in Biofuels (Cerbio) Tecpar leads the new National PROBIODIESEL development programme (with more than 35 organizations (automakers, lobbying and sector associations, R&D centres, agriculture cooperatives, URBS, etc) in Brazil and abroad)
2007	BRT systems are already operational in cities like London, Beijing, Tehran, Göteborg, Los Angeles, Mexico City and New Delhi (engineered by Volvo)
2008	The City of Curitiba procures buses running on B100 (100% biodiesel) The National Oil Agency sets biodiesel blend standards in all commercial vehicles (2% in 2008; 5% in 2013); National Biodiesel production grows; new private refineries announced for Paraná
2009	New “Green Line” in Curitiba’s BRT, with 12 Volvo and 6 Scania buses running exclusively on B100 (100% Biodiesel), with adapted chassis, injection systems and flex-fuel engines. Performance and emissions monitored by the constructors, Robert Bosch, URBS and SMMA

SOURCE: CARVALHO, MINGARDO, AND VAN HAAREN (2012, p. 383)

It is also worthy of note that beyond their praised environmental achievements, such as the greatest green area in a Brazilian metropolis (rate of 625 sq. ft. of green area/inhabitant), Curitiba’s system also presented social impacts as well. For instance,

the 12 transfer terminals of the city have the “Citizenship Streets”, with convenience stores, post offices, and other commercial services, providing “a range of municipal services in addition to the usual commercial operations including health centers, vocational training centers, local assistance offices, and social service centers” (GUSTAFSSON; KELLY, 2016, p. 86). The idea is to reduce citizens commuting, because they could work, have leisure activities, and public services, closer to their homes. Additionally, Curitiba implemented the “social fares”, where “[r]iders pay one uniform fare, regardless of the distance being traveled or the number of transfers; […] alluding to the fact that shorter journeys subsidize the cost of longer journeys disproportionately taken by low-income residents” (GUSTAFSSON; KELLY, 2016, p. 85).

However, the history of success of Curitiba’s transport model, almost a fairy-tale from external observers’ viewpoint, was not exempt from struggles. Several actors are involved in the system, making pressures and negotiations in the institutional arena towards their own interests in parallel with efforts for disseminating the sustainable and social benefit logics. Thus, we believe that the emergence of the hybrid market emerged from such arenas of negotiation since the Municipality involved private organizations (such as Volvo and other companies as service providers) in the entire process since its inception. Private organizations had to cope with the pressure from social and environmental logics, and at the same time achieve sustainable economic value from their operations.

3.6 SUMMING UP THE RESEARCH METHODS

TABLE 6 – SUMMARY OF THE OVERALL RESEARCH METHODS

3.1 The research problem	**3.2 Ontology, epistemology and logic**	**3.3 Research design**	**3.4 Methodological rigor**	**3.5 Empirical setting**
How institutional complexity and institutional work performed by social actors can lead to the emergence of a hybrid market in the context of urban innovation in transport systems	Constructionist ontology Interpretivist epistemology Inductive logic (BANSAL; SMITH; VAARA, 2018; BRYMAN, 2012; GEPHARD, 2018)	Qualitative single case study Level of analysis: market Unity of analysis: relational Object of analysis: the market originated from the development of the bus rapid transit system in the city of Curitiba, Brazil. Temporal dimension: Longitudinal Data collection: 24 Semi-structured interviews held with 23 informants and archival data Data analysis: Grounded theory methodology (GARUD; BERENDS; TUERTSCHER, 2018; GIOIA; CORLEY; HAMILTON, 2013; GRANQVIST; KALLIO; NISSILÄ, 2018; OZCAN; HAN; GRAEBNER, 2018)	*Ex-ante* and *ex-post* rigor Careful research design and data collection (e.g. sampling) Data structure Credibility Transparency Reflexivity Transferability Boundary conditions Limitations (GEHMAN et al., 2018; GIOIA; CORLEY; HAMILTON, 2013; LINCOLN; GUBA, 2013; RHEINHARDT et al., 2018)	The emergence of the hybrid market from the urban innovations that led to the development of Bus rapid system in the City of Curitiba, Brazil

SOURCE: The authors (2020)

4 DATA ANALYSIS

4.1 FIELD NARRATIVE

This chapter presents a field-level narrative for the development of the bus rapid transit system in Curitiba. This field narrative has been developed with the support of archival data, news articles (media coverage) and interviews. The goal of this chapter is to systematize the temporal timelines of the events surrounding the innovations in the BRT system in Curitiba and to provide a clear temporal framing to our grounded theorizing. This chapter is structured as follows.

We start presenting the antecedents of the system, specifically detailing the regulation and organization of the system. The second section deals with the transition from the 1943 Agache Plan to the 1965 Master Plan, which was the foundation for the establishment of a mass transport system in Curitiba. The third section of the field narrative details the emergence and influence of the humanizing logic in the urban planning of Curitiba. In the fourth and last section, we map and discuss, in chronological order, the main urban innovations that had an impact on Curitiba's bus transport system.

4.1.1 Organization of the system

Evidence from archival and interview data shows that the creation and development of the bus rapid transit system in Curitiba was possible, in part, due collaborations of private bus operators. However, the market for bus services in Curitiba was not an organization role model since its inception. As one of the research Interviewees notices, Curitiba's bus transit system in the 1950s was something similar to a "*bang-bang*", and he mentions that "*that thing was really an adventure, […] it was a mess*" (INT19):

> *"Actually, it [bus services] has begun in the decade of 1950 but on an unordered way, because everyone would play where they wanted. You would get up in the morning, it's raining or anything, 'no, I'm not going today', and I got two buses […] So, it was gunfire. The passengers would wait for the bus and they would never know if it would come or wouldn't come, nobody had control over anything, there was no schedule, there was nothing. It was a gunfire*" (INT19).

The public transport moving from downtown to more developed areas was performed by tramways, but there were not many options for those areas residing away from the tramway rails (070D1975). Such lack of offering in the bus transport system of Curitiba had also been vocalized by local media at the time. For example, in two articles published in 1949 at "*Gazeta do Povo"* newspaper, the need for organization of public bus transport in the city had been externalized. In the first article, "*We need city transport in galore*" (1949N298) from April of that year, the journalist complains about the fact that those who live in areas where lines were not profitable for bus owners would not have adequate transport:

> *"[D]espite such notable development [of Curitiba], only little has been progressing in our city in terms of public transport. We don't have urban [bus] companies with the necessary capacity for satisfying public needs. […] The solution for the public transport, actually, will only be given in the day when a prepared company can get organized among us, and in conditions to attend the urban transport as a whole […], being attributed to the maintenance of lines that are not profitable"* (Gazeta do Povo, 1949N298).

In the second article, "*Curitiba and urban transport*" (1949N299) published in May 1949, the journalist emphasizes that "*because of the lack of an efficient organization, the Curitibano*[18] *is forced to walk on foot"*. The article also brings up the discussion concerning the existing market at the time, composed by private "companies" freely competing for attending the population versus creating a public organization that would superintend the provision of bus services as a public transport: "*Experience has shown. Competition between poorly organized companies and with the lack of resources to keep a broadened service does not bring any advantage for the people"* (Gazeta do Povo, 1949N299).

Given the public pressure for having reliable transport systems, in the 1950s the mayor Ney Braga decided to address the populations' complaints and to create new regulations for the providers of bus transport services (070D1975; 002D2004; INT19). The mayor decided to designate a committee "*composed by Alípio Ayres de Carvalho, Bernardo Fedalto and Oswaldo Kus – for them to set up a plan for the creation of selective areas for urban public transport*" (070D1975). Those committee members were chosen because they had a tight relationship with the owners of bus

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[18] "*Curitibano*" or "*Curitibana*" is the Portuguese word to denote someone or something that is natural from the city of Curitiba.

transit companies (INT19). The committee work resulted in Decree 503 published by mayor Ney Braga in 1955, which created 13 bus companies that would operate in 11 selective areas[19] (002D2004). As Interviewee 19 asserts, this was the first step in the direction of creating a transport policy in the city of Curitiba:

> *"This was the beginning of a policy of occupation in terms of concerns with mobility, with transport. It is where you have the first, in quotes, 'business owners' operating. […] Then, all this history begins to become systematized, we are going to take the regions originally, historically occupied and we are going to create people [companies] to operate. […] Then, it was the end of that gunfire of space stealing, it was a fare-fight, no one had an established fare in Curitiba, they could charge as much as they wanted, they would put buses whenever they wanted, there was no schedule, nothing. Then, it started to have some organization on this thing "* (INT19).

Moreover, as IPPUC reported to the World Bank, "*[t]he first attempt at organizing public transport in Curitiba was the Mass Transport Plan elaborated in 1955, which proved satisfactory for almost a decade*" (085D1977). After this period, the system collapsed again mainly due to the radial character of the bus lines. The solution for this new problem is discussed in the next section regarding the transition from Curitiba's Master Plans.

4.1.2 The city's Master Plan transition: from planning to implementation

The driving force of the development of the mass transport system in Curitiba (no matter what mode was to be chosen – bus, trains, trolleys, tramways, etc.), was the so-called linearization of the city that started to be planned in the 1960s. However, the first effort to plan the growth of Curitiba was developed by the Coimbra & Company Ltd. under the guidance French urban planner Alfred Agache in 1943 (010D1985). As it is shown in Figure 4, it previewed the growth of the city in a concentric or radial direction, that is, the city would grow from its center (Downtown) in direction to the suburbs (010D1985). According to interviewee 23, the Agache Plan "*was a development plan, a plan that considered the city downtown as the nucleus of*

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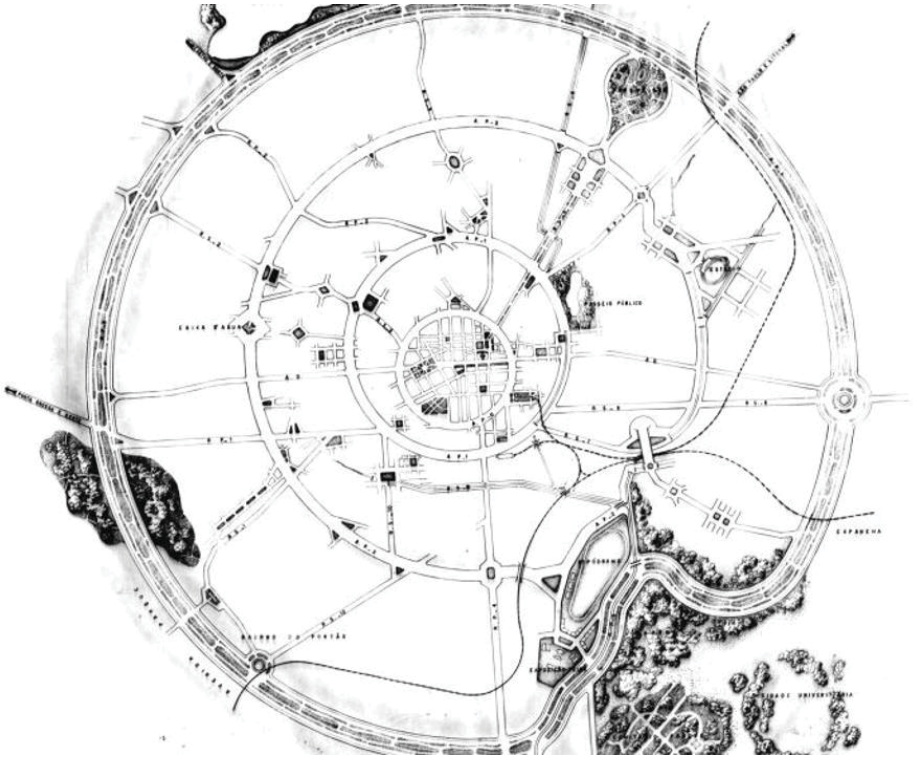
[19] According to Euclides Rovani (002D2004), the creation of selective or exclusive areas divided the city like slices of cake, in which each bus transit company would be responsible for providing the transport for their own part of the city (selective area) under a 5-year concession agreement. This arrangement provided the City Hall with the authority to determine (standardize) the fares charged of the population as well as to establish regular schedules for the bus lines.

everything. Many cities around the world are like that. Thus, there was a spiral system and some construction was made based on that. […]. That's the Agache Plan."

FIGURE 4 – THE CIRCULAR ROAD SYSTEM REPRESENTING THE AGACHE PLAN



SOURCE: Gazeta do Povo (2011N487)

The Agache Plan, "*also known as the Avenues Plan, widened Curitiba streets and established a new road standard, with the implementation of broad avenues with a tree-lined median*" (IPPUC, 012DNAN). The jobs were located in the central area of the city and people would move by large avenues that would function as circular conductors of the city's growth to predetermined service zones (commerce, military, sports, supply, education, administration, and industrial areas) (006D2016). However, as declared by the former mayor Ivo Arzua, "*the main lines of the Agache Plan – the large avenues – have had been traced, but the mayors that had succeeded did not continue it […], and it was kind of left in the drawer while the city was inordinately growing*" (035D1989).

As by 1964, Curitiba had 340 thousand inhabitants and the citizens were facing the problems of typical medium cities, such as traffic jams in downtown. The Agache Plan ended up getting obsolete because it was developed when the city had 120

thousand inhabitants. Thus, "*by the influence of the new architects and professors, they kind of made up his [Mayor Ivo Arzua] mind that he had to make a contest for a new Master Plan for the city, because this Agache Plan could not sustain itself anymore. […]. Ivo Arzua said: 'let's make a National contest', and the contest was done in 1965"* (INT23) with funding granted by Karlos Rischbieter[20] from the Codepar, Company for the Development of the State of Paraná (040D1991). The winner of the contest was the project presented in the association between the São Paulo company Serete Engineering S.A. and Jorge Wilheim Associated Architects, the Preliminary Plan of Urbanism of Curitiba (018D1966), also known as Serete Plan, presented in 1965 (035D1989; 006D2016). According to Lubomir Ficinski, architect and former president of the IPPUC, the Serete Plan was "*the mark of the urbanistic change of Curitiba […]. With the Serete Plan, there was a rupture: the modernity had arrived*" (037D1990).

And how was it different from the Agache Plan? The first major difference between the Agache Plan and the Serete Plan was that while the former was thought and delivered by Alfred Agache, the later would be based upon the local group personnel that had been given the task of keeping the Plan aligned with the city's cultural heritage. As narrated by the former mayor Ivo Arzua, "*we have put together a team to keep up with it formed by City Hall workers. This is because there's no use ordering a plan to competent professionals without the presence of the personnel that is going to execute it both in its elaboration and in its main lines*" (035D1989). This team has been designated as Appuc[21], Research and Urban Planning Advisory Board of Curitiba and they "*started working like this: Serete developed the works in São Paulo and twice a month, Wilheim would come to Curitiba to meet a small group. The proposals were discussed, and the project had been elaborated always with home staff*" (Franchette Rischbieter, 037D1990).

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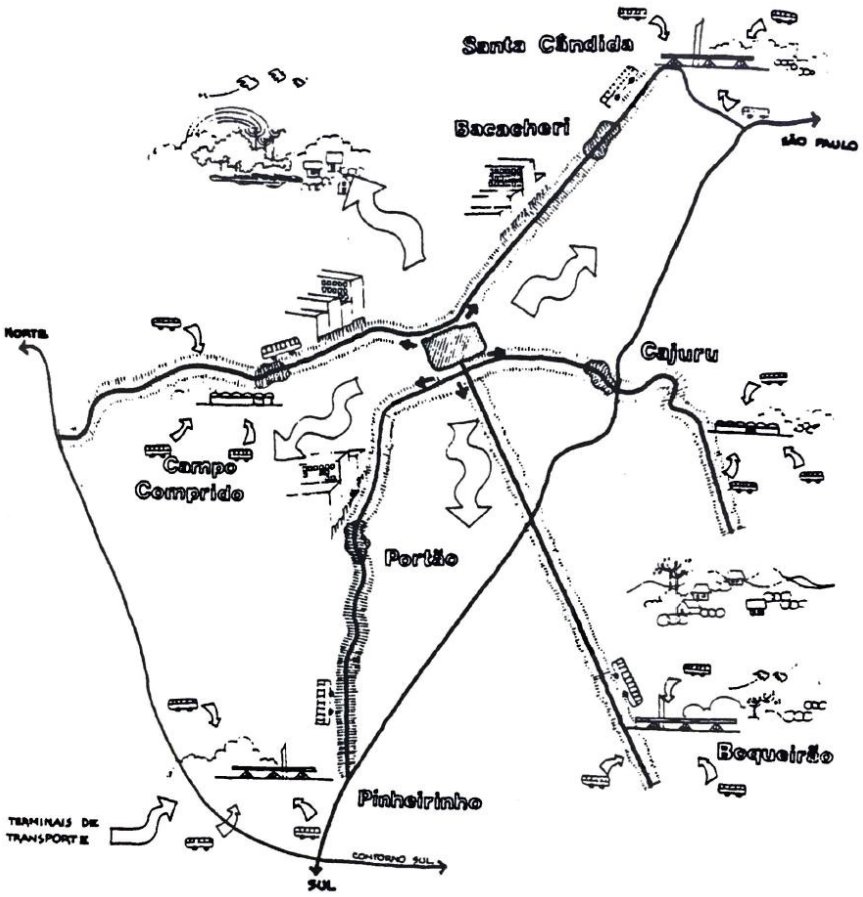
[20] Karlos Rischbieter was a key person for the development of Curitiba as a whole city, way beyond the transport system alone. Married with IPPUC's Franchette Rischbieter, he was the president of the Codepar (1962-1964), BADEP (Bank of Development of Paraná) (1972-1974), Caixa Econômica Federal Bank (1974-1977) and Banco do Brasil Bank (1977-1979). Thereafter, he became the Ministry of Economy (1979-1980), and the president of Advisory Board of Volvo do Brasil (1980-1994) (002D2004).

[21] Assessoria de Pesquisa e Planejamento Urbano de Curitiba

FIGURE 5 – THE STRUCTURAL AXES OS DEVELOPMENT PROPOSED IN THE 1966 MASTER PLAN



SOURCE: Rafael Dely (006D2016)

The second major difference was that the city growth would become ordered in linear directions instead of in spirals around the city center. As Figure 5 shows, the plan took existing roads that were formerly known as pathways of drovers and designated them as special axes of development. The North axis, that would direct the city growth towards the Santa Cândida neighborhood, the South axis in direction of the Capão Raso neighborhood, the West axis towards the Campo Comprido neighborhood, and the East axis that would lead to the development of the Cajuru area. Later on, the fifth line of development was established connecting the city center to the Boqueirão neighborhood. To this group of roads was given the name “structural pathways”, or “structural axes”, in which there would be allowed a high-density occupation. The axes would be composed by large avenues that would contain the following features: “*they have a constant width with two fast lanes and one slow lane in each direction; they don’t have crossing in less than three hundred meters of*

distance; they are crossed by distanced transversal overpasses and they don't need semaphoric signaling […]; it has the prevision of an eventual metropolitan train" (IPPUC, 019D1966).

However, when the IPPUC and the City Hall started to implement the Master Plan in 1971, they realized the need to adapt the plan further to fit into the city's reality at the time. As mentioned by Lubomir Ficinski, "*the Serete Plan had a vision of utopia – in a good way. Long term vision, the structural axes; but it did not define how to make it happen, it did not detail it. The day-to-day necessities that brought the solutions. The confrontation between everyday life and the dream that produced the Curitiba's Master Plan"* (037D1990). In other words, the structural axes, that seemed to be an outstanding idea on paper, was not able to be implemented as it was planned. In the words of Rafael Dely, architect and former IPPUC president, "*in practice, theory changes* (006D2016)":

> *"The definition of 60m of width for the structural axes, as proposed by the Master Plan, was totally inappropriate, unreal, impracticable when it was to be implemented. There were not enough resources to expropriate 20km of pathways with, on average, 30m of width. […] A larger dimension would be needed, because every function which the pathways would have, including an exclusive lane for public transport, would not 'fit' in the existing width*" (Rafael Dely, 036D1989).

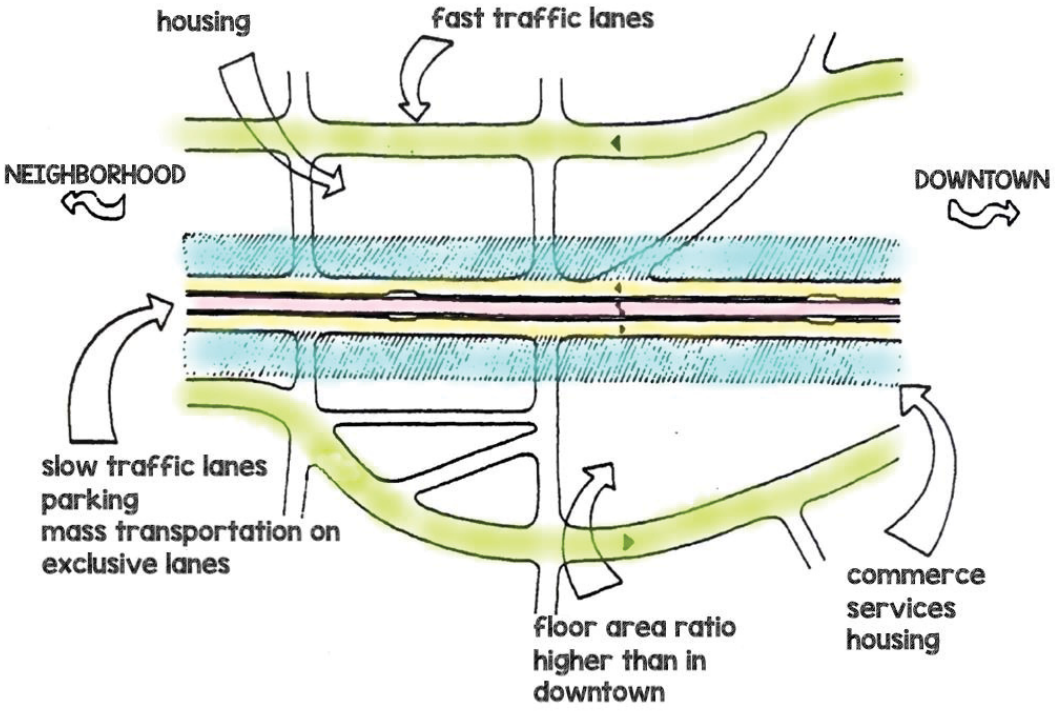
The intervention to implement the structural axes would generate a massive impact on the urban scenario, what the architects call, an urban surgery would be necessary to put the plan into practice (037D1990). However, Rafael Dely came up with the idea of instead of creating one extremely large avenue, the IPPUC could take the existing streets that were parallel to the structural axes to created three avenues that would be the backbone of the urban development of Curitiba through public transport:

> *"Coming back from the trip [to Europe], I had crystallized the idea that it would not be possible to execute the structural [axes] within the original plan. It would be needed to seek another way, a totally different one. This way, that would become the creation of the trinary system, had already been drawing on my reflections. Studying the map of Curitiba, I have identified countless stretches of streets, almost parallels, on both sides of those streets that had been chosen as structural: João Gualberto, República Argentina, Sete de Setembro avenue. Going through these stretches, I started thinking about dividing the new functions of the structural axes. An idea poked on my brain: why not dividing the new functions of the axes into three streets? One central (the previously existing ones), where activities inherent of a downtown could be concentrated, added with slow lanes, parking spots, and dedicated lanes for*

> *public transport, and, running on the outside, two lateral [streets] – one on each side, with downtown-neighborhood and neighborhood-downtown directions, that would be dedicated to continuous and faster traffic. Those lateral lanes, [the] fast [lanes], would be formed by those observed stretches, added by small expropriations for guaranteeing its continuity."* (Rafael Dely, 006D2016).

Such idea, when implemented, was named as "trinary system" due it's three parallel streets configuration. Figure 6 shows how the trinary would be designed. At the upper and lower levels of the figure (green color) are located the fast traffic lanes; at the center of the figure (red color) is the central lane, which is "*separated with concrete dividers from the normal traffic serving as exclusive bus lanes [mass transport]*" (URBS, 031D1992) and where buses can go both directions (downtown-neighborhood and neighborhood-downtown). In yellow color are the slow traffic lanes, in which are located parking spots and a wide range of commerce, service, and housing (blue color) buildings with high flor area ratio[22] (high-density areas of occupation).

FIGURE 6 – THE FIRST MAJOR URBAN INNOVATION: THE TRINARY SYSTEM



SOURCE: Adapted from Rafael Dely (006D2016)

[22] Floor area ratio, also called plot ratio, is the urban planning measure to control (or limit) the density of urban occupation. It "describes the ratio of building's total floor area (gross floor area) divided by the size of the site (piece of land or plot) upon which it is built" (LEHMANN, 2019, p. 81).

Our data shows that the creation and implementation of the trinary system can be considered as the **first major urban innovation** from Curitiba in general and IPPUC's team of architects and urban planners specifically, because "*there wasn't anything like that in the world, it was created here in 1972/1973*" (Field Notes, INT14). Lubomir Ficinski, one of those influential architects that have worked with Jorge Wilheim during the Master Plan studies, confirms that the trinary system consists of a major urban innovation because "*[t]here was no [prior] reference. There were some isolated ideas, some discussions up on the air. But the way Curitiba implemented the trinary system – Rafael Dely's idea – it was unprecedented in the world. There was nothing like this, on the contrary: Curitiba itself became the reference*" (037D1990). As narrated by Rafael Dely in the excerpt above, "*It was like that, with a genuinely 'Curitibana' invention, that I have established the foundations for what Curitiba would become*" (006D2016), that is, a model of urban planning and ordered growth.

When the mayor (architect, urban planner and former IPPUC president) Jaime Lerner implemented the trinary crossing the city from north to south, they faced some backlash, as mentioned by Interviewee 23, "*[t]here was resistance, sometimes sporadic. Of course, the guy where [the streets] crossed, it was a struggle for being able to expropriate, for paying them and so*". Moreover, Curitiba's citizens were concerned that the changes in the structure of the city could lead to a decrease in their property value, as the vignette told by Interviewee 19 shows:

> *"When that thing we call urban rectification [linearization] started, this thing of implementing of what later would become the axes, this 'rectification', in quotes, goes through a very critic view. Not only ours as the media, our too but mainly from the public administration itself, because it implies in profound and physical changes in the city. Curitiba is a round city until then, we have a connotation of a French city, European, in circles. You have downtown, keep expanding […], and then comes a crazy guy and says:*
> *- 'I'm going to make an avenue that is cutting [the city] all the way through'*
> *- 'You are ruining the city!'*
> *And no, it is not ruining it, it is remodeling it.*
> *- 'But my region it's not going to have an avenue! It is going to depreciate!'*
> *- 'No, it's not [depreciating]. We are going to give you compensation, you are going to be attended by transport here as well, with a cheaper [transport] system […]'"* (INT19)

However, the media was already noticing that Curitiba was going through major structural changes that would revolutionize the city as a whole and realized that "*we had to change and [we had] to educate the Curitibano*" (INT19) about the new

trinary system. The cover article published in the newspaper "*Voz do Paraná*" on October 1971 headlines the construction of the trinary system and reports that "*The Revolution starts on the streets*" (1971N416, Figure 7). The president of IPPUC at the time (Lubomir Ficinski) mentions in the article that the structural axes bring "*an authentic revolution, because around them is where the city is going to be structured*".

FIGURE 7 – NEWSPAPER HEADLINES FROM 1971 REPRESENTING THE REVOLUTION CAUSED BY THE TRINARY SYSTEM

A preocupação central do plano feito pelo IPPUC para as ruas de Curitiba é beneficiar o pedestre. Os técnicos entendem que a cidade não é apenas um núcleo de concentração de trabalho, mas também um lugar onde todos sintam prazer de viver.

A revolução começa nas ruas

As estruturais funcionarão como as espinhas dorsais do plano viario. E não serão apenas duas ruas que cortarão a cidade de Leste a Oeste. Serão um conjunto de vias que atrairão para suas margens atividades que hoje se concentram nas zonas centrais.

VOZ DO PARANÁ (17-10-71)

Depois de reduzir sensivelmente o tráfego de veículos em alguns pontos centrais da cidade, e iniciar a transformação da rua XV de Novembro numa extensa passarela exclusiva aos pedestres, a Prefeitura de Curitiba iniciará, em princípios de 1972, a execução de seu Plano Viário — uma autêntica revolução na estrutura da Capital paranaense.

O Plano não representará apenas melhorias, necessárias a tôdas grandes concentrações urbanas. É fundamentado num amplo planejamento, que sem deixar de lado soluções para o tráfego, edificações de obras de arte, entre outros aspectos, tem como preocupação central o elemento humano.

O sistema foi concebido pelo Instituto de Pesquisas e Planejamento Urbano de Curitiba — IPPUC — e integra o Plano Diretor do município, aprovado pela Lei n.º 2828, de 1966. Para sua elaboração, os arquitetos do Instituto contaram com um grande trunfo: as experiências conquistadas em todo o mundo, extraindo-se delas o que há de melhor e que atendesse às nossas exigências.

A preocupação de colocar o homem como o maior beneficiado ao se conceber o Plano, está bem clara nas palavras do arquiteto Lubomir Ficinski, presidente do IPPUC:

—O tráfego não pode ser solucionado sòmente em função do automóvel, mas também em função do homem, pois a cidade não é apenas um núcleo de concentração de trabalho, é antes de tudo onde moramos. Por isso precisamos nos sentir bem nela.

E dentro dêsse espírito é que Curitiba verá nascer seu nôvo Plano Viário, que se preocupa com uma série de aspectos, centralizado por êste de cunho humanista. O Plano será executado em etapas, iniciando pela implantação de dois grandes eixos estruturais (Norte e Sul) que tangenciam o centro da cidade. A etapa final será o metrô.

VIAS ESTRUTURAIS

As estruturais serão as espinhas dorsais do Plano. Ao contrário do que muitos podem imaginar, não serão apenas duas vias que cortarão a cidade no sentido Leste-Oeste. As estruturais Norte e Sul serão um conjunto de vias, que terão a função de atrair para suas margens o desenvolvimento das atividades tradicionais, normalmente concentradas no centro da cidade. Terão a finalidade de evitar o crescimento radiocêntrico de Curitiba, confirmando a tendência linear, já natural, de expansão da Capital do Estado, no sentido Nordeste-Sudoeste (Pinheirinho-Atuba).

Em princípio, o Plano estabelecido pelo IPPUC admitia duas únicas vias bastante largas e com várias pistas. Esta idéia foi hoje abandonada, por uma série de desvantagens que acarretaria, conforme explica o presidente do IPPUC:

—Isso representaria a destruição de grandes e importantes trechos da cidade, pontos já tradicionais de comércio. Implicaria em volumosas despesas à administração pública, com indenizações e, pior ainda, cairíamos num êrro já evidenciado em outras cidades — as largas avenidas de trânsito compacto que fogem à escala humana.

Mons. Celso: só para pedestre.

O arquiteto ilustra melhor o problema, dando mais objetividade a expressão escala humana:

— O pedestre está acostumado a passar pela calçada e perceber um amigo do outro lado da rua. As largas avenidas tiram-lhe esta perspectiva. E além da grande dificuldade para se atravessar uma via nessas condições, elas afugentam o elemento humano, pois estão fora de sua escala dimensional.

UMA REVOLUÇAO

Para se chegar a um ponto comum, isto é, atender à necessidade de escoamento rápido do tráfego, sem prejuízo ao homem, o Instituto de Pesquisas e Planejamento Urbano de Curitiba "bolou" o estabelecimento de um sistema de binário, centralizado por uma via de tráfego lento. Com êsse sistema as estruturais serão constituídas por um grande eixo integrado por três vias paralelas, com uma largura máxima de 30 metros de caixa (de prédio a prédio): a central, de tráfego lento, onde se concentrarão o comércio, clubes, estabelecimentos de crédito, cinemas. Suas calçadas serão mais largas, pois será uma via preferencial aos pedestres. Paralelas a essa via, correrão duas outras, de sentidos opostos, de tráfego rápido.

Com isso eliminou-se o problema das largas avenidas de dimensões descomunais, de trânsito compacto, barulhento e fumacento, a afugentar as pessoas. Acredita o IPPUC que o sistema permitirá o desenvolvimento das atividades que tradicionalmente estão concentradas no centro da cidade, ao longo do eixo das estruturais. Assim, o arquiteto Lubomir Ficinski diz que a denominação dêsses dois grandes sistemas não é meramente técnica:

— As estruturais são uma verdadeira legislação. Trazem em seu bojo uma autêntica revolução, pois em tôrno delas é que a cidade deverá ser estruturada.

A via central será bem definida pelo seu aspecto mais humano, acolhedor. Terá uma iluminação diferente, proporcionará o estabelecimento de bares e lanchonetes, oferecendo as condições para se constituir em autênticos pontos-de-encontro. As paralelas, que servirão para o escoamento rápido do tráfego, serão divididas por um canteiro verde, com uma parte mais estreita do lado que dá para a via central de tráfego lento. As faixas mais largas é que serão preferenciais aos veículos, permitindo maior velocidade.

CIDADE MAIS HUMANA

O Instituto de Pesquisas e Planejamento Urbano de Curitiba, através de seu corpo de técnicos, vem observando tudo que se vem fazendo nas grandes cidades do país e de todo o mundo, em têrmos de soluções para os problemas urbanos. Isso tem proporcionado muitos benefícios, quando o órgão passa a planejar em função dos problemas de Curitiba, conforme salienta o presidente do IPPUC:

— As experiências dos outros — às vêzes amargas experiências — têm nos ajudado a trilhar caminhos mais humanos. As obras de arte, por exemplo, devem ser muito bem dosadas, para não massacrar o elemento humano.

E dentro dessa linha de pensamento, acrescenta o arquiteto:

— Queremos fazer de Curitiba uma cidade mais humanizada. Ainda possuimos muitas coisas gostosas, precisamos preservá-las. Cidade não é só um local de trabalho, agitado, trepidante. Precisamos gostar de nossa cidade.

O fato de o prefeito Jaime Lerner ter sido do corpo de arquitetos do IPPUC, e seu presidente durante um ano, está facilitando muito as coisas, para transportar todos êsses planos do papel para a realidade. Nisto concorda o atual presidente do IPPUC, salientando o amplo diálogo entre o órgão de planejamento e o Executivo. Citou, também, o fato de o prefeito, ao assumir a chefia da administração da Capital, contar com tudo planejado, à sua inteira disposição.

— E acima de tudo — frisou o presidente do IPPUC — chegamos a uma situação que pedia uma definição. Depois de mais de quatro anos planejando, estava na hora de agir. E felizmente a Prefeitura resolveu agir.

SOURCE: Voz do Paraná (1971N416)

Evidence of the relevance of the trinary system as an urban innovation, and also regarding how the resistance was dealt by the time, considering that Brazil was in the midst of a Military Regime, is found in the excerpt of another vignette that was by Interviewee 19:

> *"When he [Mayor Jaime Lerner] made the trinary, I was working for a newspaper at the time, in 1970, I remember that day because, by chance, I used to cover the City Hall [subjects], and they said:*

> *- 'Go to the City Hall because Jaime is going to announce that he is going to open a new avenue.'*
> *- 'Well, a new avenue is not a huge novelty, but where is it?'*
> *- 'He is going to change the face of the city!'*
> *- 'One avenue that changes the city? it's getting interesting*.'
> *And it was taking the João Gualberto [avenue] and the Paraná avenue and doing what he did in the North axis, but nobody would imagine that because at that time it was dictatorship time, you did not have quite the rights to yell, so he released the parallels [the fast ways] that are there today, he opened it in [the base of] a brawl"* (INT19).

4.1.3 The emergence of a humanizing logic: IPPUC takes over the City Hall

The trinary system indeed has transformed the city design. However, data show that "*whoever refers to this moment, to the transit system, must say that if Jaime [Lerner] was not the mayor, nothing of this would have happened*" (INT20), and that "*since he [Lerner] was the mayor in his first term, we had an urban inflexion that changed completely the path of the city*" (INT5). This is relevant to notice, first and foremost, because Jaime Lerner was a member of the Appuc, thus, he was personally involved in the development of the Master Plan of 1966 (037D1990).

Additionally, according to Voz do Paraná newspaper article, due "*the fact of the mayor Jaime Lerner has been on the roster of IPPUC's architects and its president for one year [1968-1969] is making things easier for transporting all these plans from paper to the reality*" (1971N416). In this regard, he knew the staff that would help to implement IPPUC's ideas once he was nominated to take over the City Hall as mayor of Curitiba by the State governor Haroldo Leon Peres in 1971 (INT19; INT20; INT23; 037D1990). The team of urban planners included the names of Osvaldo Navarro, Rafael Dely, Carlos Ceneviva, and Lubomir Ficinski, all of them had previous ties as the first graduate classes of the Architect and Urban Planning school at the Federal University of Paraná (INT7; INT20; INT23).

The new administration brought along with them a new logic they called the "humanization of the city", which was the opposite of the public policies that were being implemented in other Brazilian city capitals, such as São Paulo. This policy was responsible for placing the human being as a priority in the city design instead of placing the design of large roads and avenues for traffic occupation above all. Lubomir Ficinski, IPPUC president at the time, said that "*[t]raffic cannot be solved in the function of the automobile alone, but also in function of the man, because the city is not only a nucleus of job concentration, before anything else, it is where we live*" (Voz do Paraná,

1971N416). As an article published in the newspaper Diário da Tarde address, the new prevailing logic would transform the manner in which the city would be thought from that period on: "*The current administration has started with the determination to humanize Curitiba, and at the end of his term period, mayor Jaime Lerner intention is that it will finally become a new city, destined to that man that inhabits it*" (1972N536).

FIGURE 8 – CONSTRUCTION WORK FOR PEDESTRIANIZING THE XV STREET IN 1972

SOURCE: Prefeitura Municipal de Curitiba (2020)

The new regime intended to put into practice the core of the 1966 Master Plan, the "*pedestrianization*" of the city (006D2016), especially of the downtown. In this regard, as IPPUC state, the city center "*should be 'returned to the pedestrian', by means of blocking off certain streets to ordinary traffic and turning them into leisure*

areas with mosaic walks, gardens and trees and generally equipped so as to provide the pedestrian with an agreeable atmosphere" (085D1977). The major project reflecting this new logic was closing the XV Street (*Rua XV de Novembro*), also known as The Flower's Street (*Rua das Flores*), which is the main avenue of the city in terms of automobile traffic, commerce, and service, in 72 hours during a weekend in 1972 (see Figure 8).

> *"This is the history of the XV Street. Jaime [Lerner] was the mayor, and there was that traffic jam, the commerce was decadent, and what did he decide? To close off the XV Street. […] And I remember that I went there on a windy day, there were newspapers flying on the sidewalks that were kind of dusty, it was like those Mexican movies with that rolling tumbleweeds. […] Then we got to the conclusion: we got to close it"* (INT20).

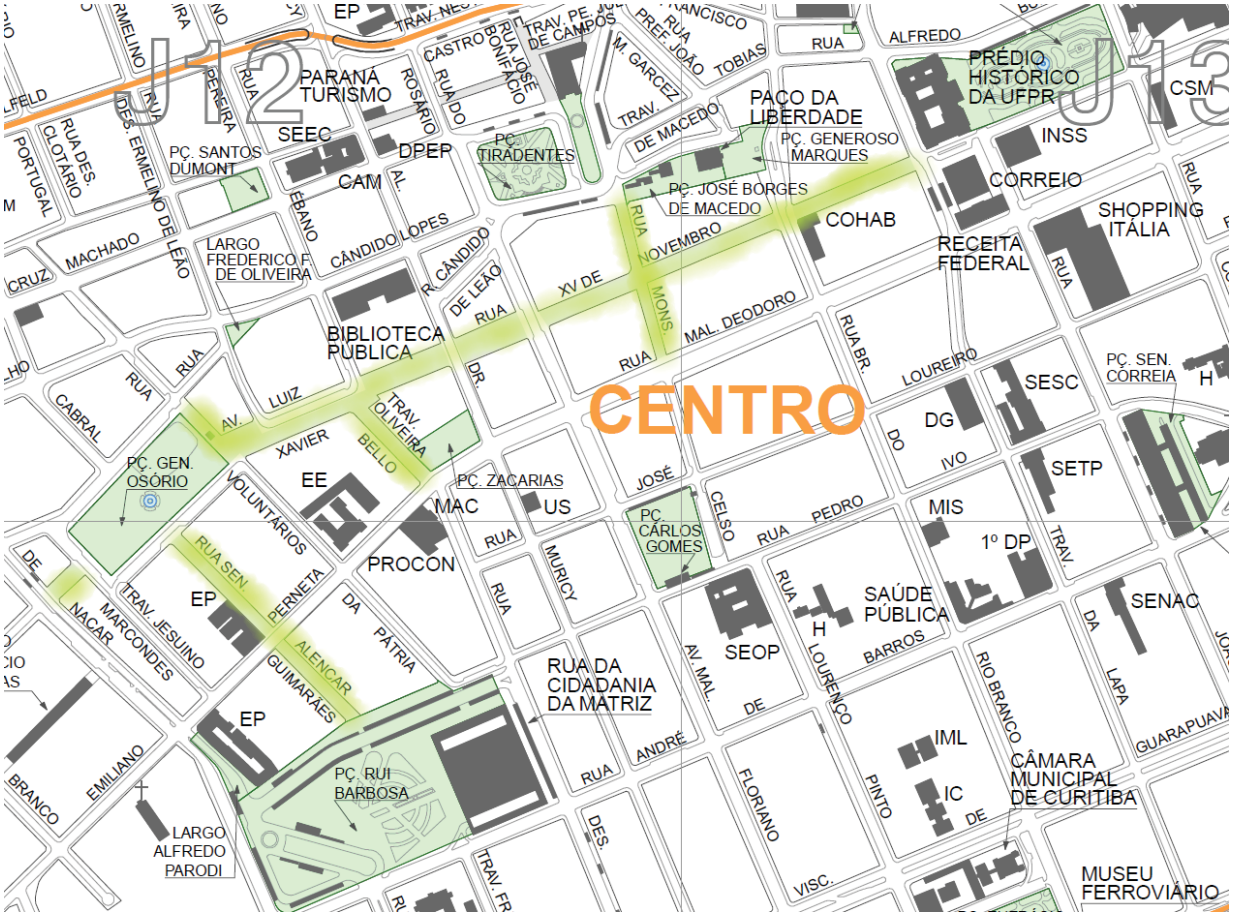
According to Interviewee 20 accounts, closing the XV Street made sense for the architects and urban planners that had that "humanizing logic" in mind. However, they had to face public scrutiny and mainly the resistance of business and shop owners, since it was not an acceptable idea for them to close off the streets for car traffic and parking where their commerce was located. However, when they realized how positive it was for their sales, they started to urge the city hall to close off several other squares of the XV Street :

> *"By the way, the XV street had everything to go wrong because the business owners were against it. […] We were fortunate that it worked out because the commerce was against it. Every person is afraid. Imagine it: the guy makes his living from that commercial activity, and you come with a different idea of closing off the streets and so. Nobody has courage from the unknown but is afraid of it. […] But do you know why it did work out too? With all that controversy, one of them [business owners] looked for [the lawyer] René Dotti that has an office at Marechal Deodoro [street] to file a lawsuit for precluding the construction because they saw that the construction had started at 6 pm. Thus, the media, the radio stations, television stations, they were all saying: 'look, there is something going on there, there a turmoil at the XV Street, they are inventing something there'. Do you know what happened on Monday? All the population wanted to come there and see what was going on. The XV Street got packed out […], they [population] were buying at the [XV Street] stores…"* (INT20).

We also find evidence of the change of discourse after the results of the construction work at the XV Street into a positive stance in the newspaper article published in the Diário da Tarde outlet, "*Pedestrian, Curitiba is all yours*", in which they inform the general population that "*the major advantage about it is the humanization of the central area that becomes occupied exclusively by pedestrians and the*

elimination of the problem of air pollution by the automobiles and the excess of noise produced by car traffic" (1972N536). Moreover, the blocking off the XV Street and of further adjacent streets in downtown can also be considered an urban innovation by itself, since it was the first pedestrian street network in Brazil (LERNER, 2014). This is relevant for our empirical analysis because data show that it has a "*far more important, function: these 'pedestrian domains' integrate the mass transport terminals situated on the periphery of the central area*" (IPPUC, 085D1977), such as the main central squares in with bus rapid transit stations as we show in Figure 9 (see the green lines upon the XV Street and adjacent streets connecting the Generoso Marques, Tiradentes, Osório, Zacarias, Rui Barbosa, Santos Andrade, and Carlos Gomes Squares).

FIGURE 9 – PEDESTRIAN STREETS NETWORK IN DOWNTOWN CURITIBA



SOURCE: Adapted from IPPUC (93D2019)

Finally, our data show that although Jaime Lerner getting into the City Hall as a mayor was fundamental for the implementation of the 1966 Master Plan that allowed

the emergence of the bus rapid system, but even more important was the fact that IPPUC technicians kept full control of the Municipality planning for at least three decades (INT13, INT17, being that former IPPUC members ended up getting elected as city mayors after Lerner left the office. In this regard, Jaime Lerner was a mayor for three terms (1971-1974, 1979-1983, and 1989-1992), Cassio Taniguchi was a mayor for two terms (1997- 2000, 2001-2004), Rafael Greca was the mayor for the first time in the 1990s (1993-1996) and he is currently in his second term at the City Hall (2017-2020). The relevance of such continuity can be exemplified by the following excerpt "*One of the most important things, I would say, is that Curitiba's urban planning has a continuity of administration. I mean, it's not just planning, but the capacity to implement and to continue the implementation" (INT7).* Such continuity in the city administration led to the fact that the culture of humanization implemented during Jaime Lerner's first term is still currently valid, because "*today for us, actually, the number one priority is the pedestrian, the second is collective transport, and the third is the other modals*" (INT16).

4.1.4 Chronology of innovations – bus rapid transit in Curitiba

Up to this point, the field narrative shows what happened in the city of Curitiba in terms of urban innovations that ended up leading to the planning of a mass transport system in the structural axes: the organization of a bus system to attend the population, the development of a new Master Plan for the city with the intention to order the city growth towards linear structural axes of development through the creation of the trinary system, and the emergence of a humanization logic that were embedded in the city planning and administration for the last four decades, placing the pedestrian and the public transport as a priority over automobiles and other kinds of individual transport.

In this section, however, we are going to map the urban innovations that were specifically related to the bus rapid system development. Mapping these innovations and placing them into chronological frames helps us in the development of a temporally embedded process model of the emergence of a hybrid market from these innovations and to understand the roles played by the main social actors and by each institutional logic in this context.

4.1.4.1 Developing Curitiba's new mass transport system: The *Expresso bus*

The history of the bus rapid system in Curitiba, or the Expresso bus system as IPPUC named it in the 1970s, actually dates back from 1969 when the IPPUC was designated to decide about what kind of transit modal would be more suitable for implementing on the 1966 Master Plan structural axes (still pre-trinary). The resulting report "*Preliminary Study for the Subway of Curitiba*" (011D1969), indicates that "*it would be possible to create a progressive acceptance from the public and to intensify the affluence to the future subway line, implementing, very soon, express bus lines that would deliver a fast, efficient and comfortable service, preparing the way for the implementation of the future [subway] system".* Notwithstanding the Expresso bus system (or bus rapid system nowadays) became a global model of public transport, our data shows that it was never the first option for Curitiba. The IPPUC have looked at other modal options, "*but then we ended up with the bus, we fell back to reality*" (Field Note, INT14). As we find on the discourse of Interviewee 19 (and on an extensive document and news article data), the subway has always been the Plan A for IPPUC:

> *"Actually, the intention was to have a subway policy, the concept of the axes was for the subway, and it was not possible to make because when the trinary was created and since you have the fast [lanes], the costs of implementing the main subway line was three times the costs of making the whole trinary system. The central lane for the subway alone would cost three times more than making the three central lanes [of the trinary]. It would have very high costs"* (INT19).

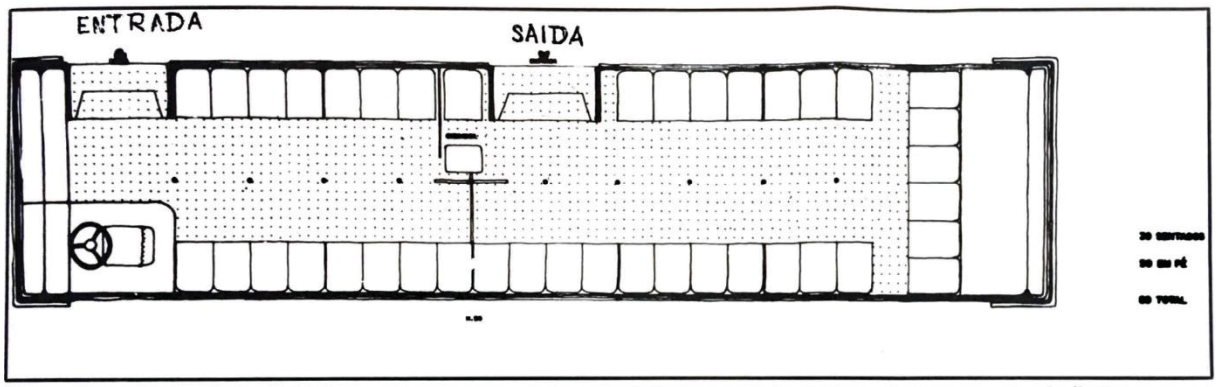
However, given the prohibitive costs for constructing a subway line in Curitiba due to the lack of adequate demand (Field Notes, INT14; INT22), the Expresso became the only option available for the city in the long-term. As the mayor Jaime Lerner mentions on an interview for the journalist Aramis Millarch in 1974, "*the only alternative, the only possibility that we have for mass transit, now, it's the exclusive lanes with the buses that we have at this moment [in 1974], and in parallel, we must develop a technology that provides a more sophisticated system"* (091D1974). Thus, Curitiba decided to stay committed to developing a bus-based transit system. For doing so, the 1969 Subway report was already predicting the need to "*adopt a bus with special design*" (011D1969).

The problem was that there was not an option of bus developed or manufactured specifically for urban transit in the Brazilian market. As the Jornal

Imobiliário article about the Expresso buses states, "*for the best use of the system to be implemented, a vehicle that could be able to deliver to the users a new transport standard would be necessary, because the vehicles commonly used for urban transport are either adapted above truck chassis or even simple adaptations of vehicles that are specific for road traffic*" (1974N327). Moreover, according to Interviewee 23, they designed how the Expresso buses would look like, especially considering that they should have and internal layout that would resemble the ones that can be found in subways or urban trains (Figures 10 and 11 show how the bus layout was designed by IPPUC architects): passengers seating sideways.

> *"I was already working at the IPPUC in 1969 and I was drawing what would become the roads and what we would put into those roads [exclusive lanes]. Now, [not] knowing what we would put in there because there were no articulated buses, nothing, and the buses were regular buses, buses with a structure that had one door in the front end and one door in the rear end and the guy [passenger] would go up on stairs, it was a road bus and the road buses were high. Then we started studying and thinking: 'look, our bus has to change, it might be something more agile, that you can board easily, and that the passenger can be more comfortable'. Then we started to design the new bus, 'the bus has to have new face', [then] we started drawing the layout of the seats that would be all sideways, […] we modified, we widened the doors, [changed] the ticketing system, and that was the first Expresso bus"* (INT23).

FIGURE 10 – INTERNAL LAYOUT OF THE EXPRESSO BUS EMULATING THE SUBWAY LAYOUT



Os bancos, no Expresso, serão localizados de costas para as laterais, de forma a permitir maior corredor para a circulação dos passageiros. As portas de entrada na frente do veículo têm explicação na própria lei da inércia.

SOURCE: Jornal Imobiliário (1974N327)

With the bus layout defined and "*being the express bus system on the verge of its implementation, [in October 1973] IPPUC created a committee composed by the engineers Tancredo Lombardi Cunha, Marcus Valério Corção, Rogério Dias Kroehlig and the architect Carlos Ceneviva to study in more detail the issue of the vehicle that would be more appropriate for the express bus finality"* (1974N327), IPPUC

technicians and the mayor Jaime Lerner have convinced the bus body manufacturer Marcopolo S.A. and the chassis and engine manufacturer Cummins to produce the Expresso bus (model Veneza).

FIGURE 11 – PHOTO OF THE INTERNAL LAYOUT OF THE EXPRESSO BUS

SOURCE: Revista Panorama (1974N053)

Our data show that the introduction of the Expresso at the time had a significant impact on the Brazilian bus market since it was the first-ever urban bus produced in Brazil. In July 1974, the newspaper Diário do Paraná headlines the Expresso bus saying "*We introduce Brazil's 1st urban bus. With pleasure, the expresso"* (1974N331). Gazeta do Povo, in August 1974 notices that "The *Expresso is ready: Meet the details of the country's first urban bus*" (1974N347). Marcopolo (the bus body manufacturer), advertised the Expresso bus in 1974 (095D1974) by stating that "*the Veneza Expresso has revolutionized the urban transport with a new conception [of bus]*" (see Figure 12). Thus, we argue that creating the Expresso bus represents a major urban innovation in terms of a bus-based transit system.

FIGURE 12 – MARCOPOLO ADVERTISING THE VENEZA EXPRESSO BUS DEVELOPED FOR CURITIBA

SOURCE: Francisco José Becker's personal collection (2020)

Moreover, despite the bus itself being considered a major urban innovation at the time in the Brazilian context (urban buses were already a reality in Europe, for example – INT17), IPPUC and the City Hall were adamant that it was only a fraction of what the real innovation was: the new mass transport system that was being implemented. For example, Gazeta do Povo published in June 1974 an article in which the mayor Jaime Lerner asserts that "*beyond a new bus, the Expresso is going to represent a totally new urban transit system with actual advantages regarding to route (with synchronized traffic signal), frequency (way lower than conventional buses), to convenience, stop time, ultimately, a revolutionary innovation*" (1974N328).

Such concern is also expressed through another article published by Gazeta do Povo in August 1974, in which Jaime Lerner brings up to attention that "*although the 'Expresso' is the first urban bus [produced] in Brazil, manufactured exclusively for Curitiba', the bus is only an accessory of an entirety, the importance, in reality, is the system itself, the improvement of the city's collective transport*" (Gazeta do Povo, August, 1974N347). To show the importance given by the Municipality to the fact that the Expresso bus was only part of a whole new system, we show the excerpt below

that was taken from a City of Curitiba's advertising piece published in September 1974 at the Panorama Magazine (1974N053):

> *The Expresso bus is not any vehicle from the future or a miracle over wheels, capable of solving every transit problem. However, it is the main element of a whole mass transit system that is being implemented in Curitiba. Built by Marcopolo S.A. with National technology and according to IPPUC's technical specifications, the Expresso bus is faster, safer, more beautiful, and more comfortable. It serves you by the same price as a conventional bus. […] Expresso means fast. And the Expresso bus is being implemented for transporting more people, faster* (Revista Panorama, 1974N053).

Although the Expresso bus proved to be a success in terms of urban transport, it was still lacking the "mass" element. Thus, the City of Curitiba and IPPUC started planning an alternative for replacing the buses on the dedicated lanes. The project, called the "Modern Tramways" (086D1979; 087D1979; INT23), was the first attempt to introduce the idea of the electrification of the transport system in Curitiba. The project was made through a partnership with the French agency SOFRETU (*Société Française d'Études et de Réalisations de Transports Urbains*), that was responsible for the subway in Paris, as narrated by Interviewee 23:

> *"We wanted something bigger. Then, we got to know what was being done around the world. So, I went to France, and then Lubomir [Ficinski] got in contact with SOFRETU from Paris and made a joint project with them, the 'Modern Tramway'. So, I came there [Paris], I stayed there for one month seeing some things with them [SOFRETU] that was the company that managed the subway"* (INT23).

However, implementing the modern tramway was not viable due to the lack of political support in terms of funding at the time (INT23), so suddenly the City of Curitiba was back at the search for an alternative in terms of increasing the capacity of the Expresso system. In the meantime, in October 1976, the Swedish automaker Volvo made the official announcement that they had the approval from the Federal Government to establish a production plant in Curitiba for assembling heavy trucks (Diário da Tarde, 1976N540). Thus, Volvo offered to the City Hall two prototypes of articulated buses to be tested in the Expresso bus system, killing the modern tramway project for good. As noticed by the Correio de Notícias newspaper article, the need to implement an alternative with higher transportation capacity was not new. However, considering that the original idea, electric vehicles, would be "*a very expensive system,*

it was put aside and immediately replaced when the articulated [bus] idea came up, already in use and know in several European countries" (1978N359).

As the article "*Articulated bus provokes disputes here",* published at Gazeta do Povo in December 1977 shows, Volvo's investment in the bus market was due "*the certainty of an open market for the articulated [buses] is even stronger with the authorities' willingness to give all their attention to mass transport as a consequence of the oil crisis". (*1977N351). Regarding Curitiba, specifically, the article mentions that IPPUC "*saw in the [articulated] bus the solution for the Expresso busways, which are going to be saturated in less than five years if alternatives are not found in terms of equipment with higher [engine] power and transportation capacity" (*1977N351).

FIGURE 13 – THE FIRST VOLVO ARTICULATED BUS IN BRAZIL, 1979

SOURCE: Francisco José Becker's personal collection (2020)

According to Interviewee 19, "*passing from the Expresso to the articulated buses was something relatively simple because you changed from a smaller bus for a larger one, but the basis was the same, and you had manufacturers that could produce them [like Volvo]*" (INT19). The Volvo articulated Expresso was innovative because it was the first articulated buses produced in Brazil to be introduced in a public transport

system. As asserts one of the IPPUC's architects involved in the Expresso layout design, "*I think Curitiba made experiences… The articulated bus was the first bus, I guess, that had low chassis. We made it. A couple of shorty chassis was donated, Curitiba got them from Volvo. The bus body was made by CAIO, from São Paulo*" (Lauro Tomizawa, 041D1991). As Figure 13 shows, the Volvo articulated buses (chassis model B-58) came with the same layout developed by IPPUC for the Expresso system, with the capacity to transport up to 180 passengers during peak hours (Correio de Notícias,1978N358; Diário da Tarde, 1978N542).

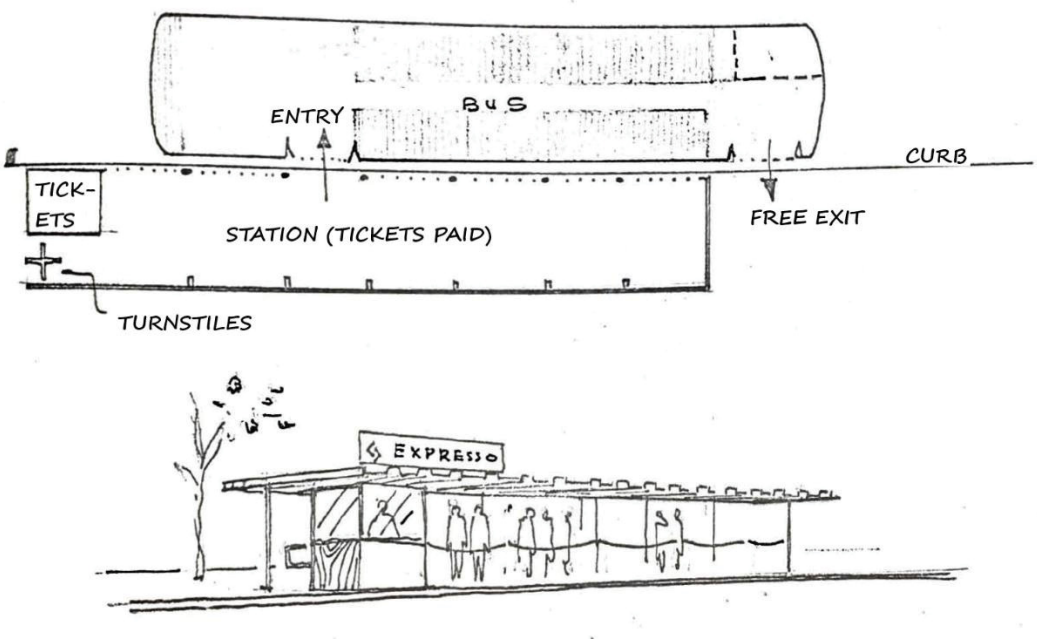
4.1.4.2 Fare prepayment and automatic ticketing

The next novelty presented by IPPUC through the Expresso bus system (what is considered one of the main features of any bus rapid transit system) is providing the passenger with the possibility of paying the fare before boarding the bus. Such innovation was already predicted in the 1969 Subway if Curitiba study, in which the IPPUC suggests the "*[c]onstruction of shelters at the stops, where passengers penetrate [it] paying in the occasion of their passage already"* (011D1969). The planning of this innovation was designed by IPPUC members and detailed in the drawing depicted in Figure 14, which shows how a station with prepayment should look-alike with its implementation in the Expresso bus system. The caption of the figure mentioned that "*the buses would not have fare collection nor turnstiles in its interior. Covered stations [will be placed] every 900 meters with ticket selling and control*" (011D1969).

In 1974, during the implementation of the Expresso system in Curitiba, the bus stations designed by the architect Abrão Assad also predicted the existence of cabins for ticket purchasing (Figure 15, left side). However, it was only in 1980 that the prepayment was implemented in Curitiba in the Boqueirão structural axis (inaugurated in 1977). According to Euclides Rovani, former director of transport at URBS and IPPUC, "*[i]n 1980 it was implemented another innovation in Curitiba, that was the automatic ticketing*" (039D1990). Moreover, the automatic ticketing as an urban innovation considering the Brazilian context because according to the Gazeta do Povo newspaper, Curitiba was *"the first Brazilian city to adopt this system, very common in*

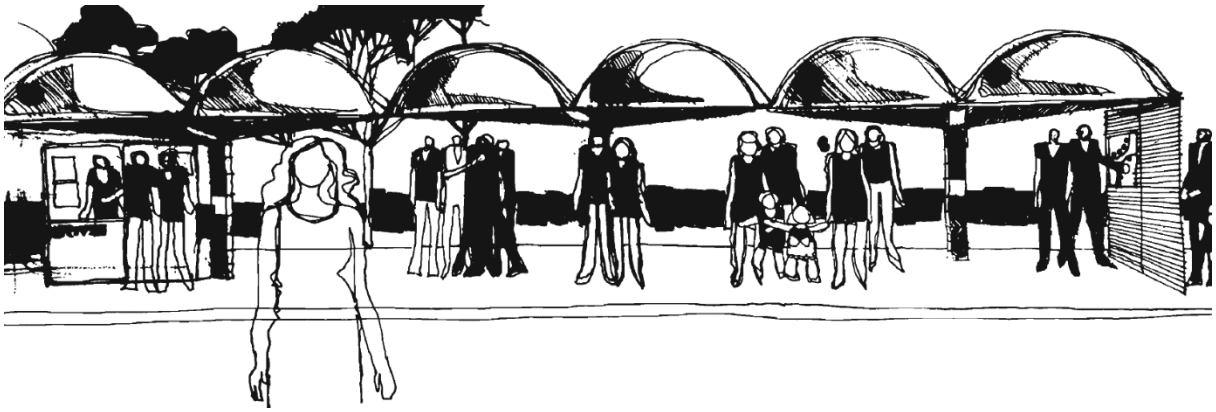
Europe and United States" (October, 1979N256), conferring continuity to the "*pioneering [spirit] of the Expresso*" (Diário do Paraná, 1980N265).

FIGURE 14 – PROJECT OF THE EXPRESSO BUS WITH PREPAYMENT STATIONS



SOURCE: Adapted from IPPUC (011D1969)

FIGURE 15 – ABRÃO ASSAD'S DESIGN OF THE EXPRESSO STATIONS WITH PREPAYMENT BOOTHS



SOURCE: Gazeta do Povo (1974N327)

Regarding the operational aspect of the automatic ticketing, Interviewee 19 tells that "w*hen Tancredo [Lombardi Cunha] had the idea of making the cards [tickets], he made it kind of long and in there was an arrow in the bottom of it. You would take the first and it [the machine] our cut it, cut it, cut. When the card was over, you would throw it away"* (INT19). In other words, "*the tickets are cars with a special ink that*

releases the turnstile to the passenger at the moment they are perforated" (1979N256). The technology for the automatic ticketing was imported from Sweden and the purchase was assumed by the private bus operators. As an official joint advertising piece from the City of Curitiba and IPPUC show (Figure 16), implementing the automatic ticketing provided the system with faster boarding of the passengers, and, consequently, one "*would not need to be any Sherlock [Holmes] to find out that the trips are going to be much faster*" (1980N264).

FIGURE 16 – CITY OF CURITIBA AND IPPUC'S OFFICIAL ADVERTISING OF THE AUTOMATIC TICKETING (PREPAYMENT)

SOURCE: Diário do Paraná (1980N264)

4.1.4.3 Social Fare and the Integrated Transport Network

The automatic ticketing was fundamental for the implementation of two other urban innovations in the Brazilian context: the social fare and the Integrated Transport Network system. The first, the "*social fare[,] is one price for everything with integration. It's an idea that was a pioneer*" (INT23) in Brazil, despite being existent in large European and North American cities (Diário da Tarde, 1980N552). It consists of a mechanism in which "*users of shorter lines – supposedly those with higher purchasing power – subsides those [users] of long lines that attend housing estates and peripheric boroughs of the city, where are located the population with lower incomes*" (City of Curitiba, 024D1981). As our data shows, the social fare was the first stage of creating a democratic system in which both high-income and low-income people would ride, as notes Interviewee 23, they did not want to gentrify the transport system:

> *"We considered [the population as pertaining to] a single class. We imagined a transport [system] that would be good and that both rich and poor would take it, […] because the social fare is a single price for everything, with integration. It is an idea that was a pioneer. […] And then, in the old days, this population that lives in the periphery, farther away, would pay more [expensive fares] […] Nowadays, one thing subsides the other"* (INT23).

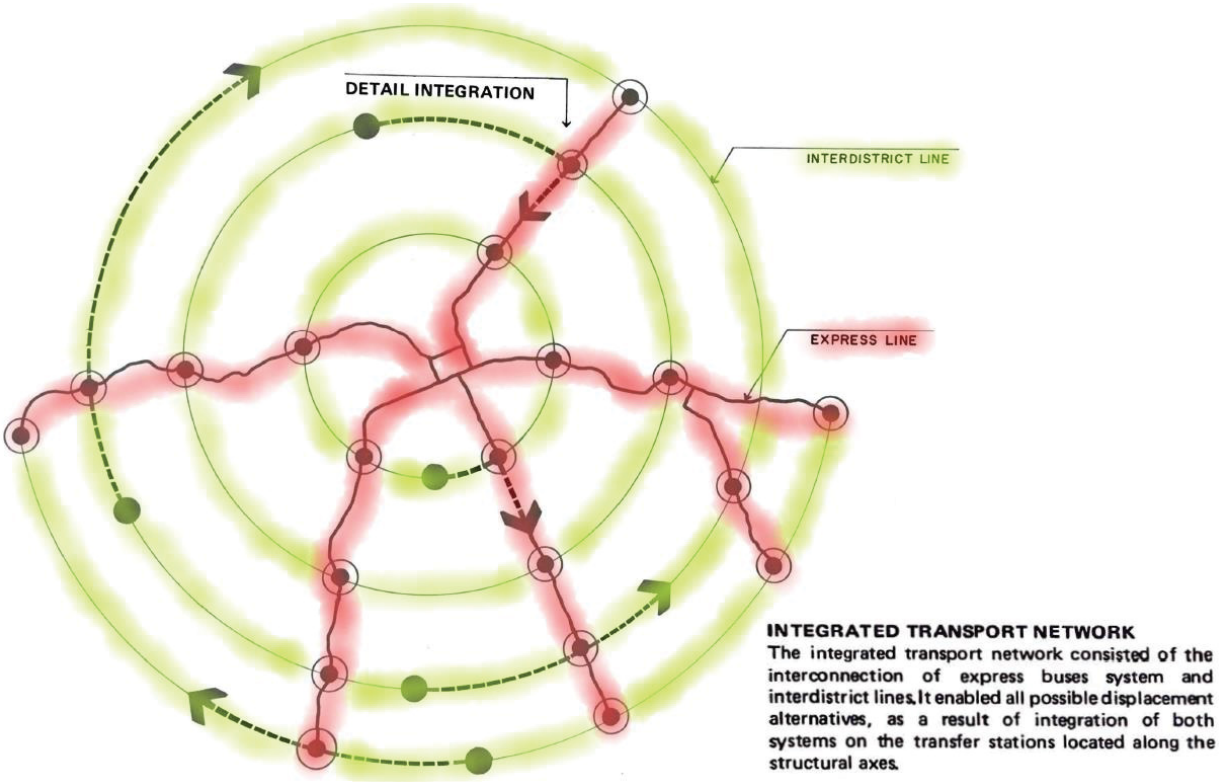
In the early 1980s, the implementation of the social fare – an idea that was already thought by former mayor Ney Braga in 1955 (039D1990) – was so innovative at the time that even the Federal government was interested in the functioning of this new fare system. This argument can be evidenced in the city's councilman at the time Jorge Yamawaki interview in which he states that "*such measure is commendable and once again [the State of] Paraná is the pioneer in [terms of] innovations for collective transport. We know that even the Minister of Transport awaits anxiously the results of this implementation that puts our State on a position of vanguard once again*" (Diário do Paraná, 1980N233). Moreover, the City of Curitiba advocates that "*another advantage of the social fare was the eliminations of the payment of two tickets in the system Expresso-feeder. For operationalizing the integrated fare, it was necessary to create blocked stations*" (024D1981), that is, the closed bus terminals.

Such advantages are also addressed by the former IPPUC president Rafael Dely, especially considering that implementing a flat fare would provide the passengers with the opportunity to reach any part of the city paying a single fare without the need to make paid transfers in the city center:

> *"The adoption of the flat fare introduced extraordinary benefits for the users because with a single ticket (there is a single price) they started to circulate all over the city if they made 'transfers' at existing terminals. With the network it was achieved a fundamental precept of public transport: accessibility understood as the possibility of getting into any point of the urban nucleus"* (006D2016).

As described above, the creation of the social fares and the construction of closed bus terminals in several neighborhoods completed the integration between the feeders (buses that would take the passengers from farther neighborhoods to Expresso bus stations), the Expresso bus corridors, and the recently implemented Interdistrict lines[23] (URBS, 031D1992).

FIGURE 17 – THE DESIGN OF THE INTEGRATED TRANSPORT NETWORK



SOURCE: Adapted from City of Curitiba / State of Paraná (089D1981)

[23] Interdistrict lines (*Interbairros,* in Portuguese) are "concentric lines with its itinerary being traveled in two directions (clockwise and counterclockwise) and that allow connecting neighborhood without the need of crossing the city center and upon payment of a single fare" (024D1981). Figure 17 shows the Interdistrict lines itinerary that are represented by green lines on the system's evolution map.

Thus, the City of Curitiba had in place the foundations and "*the necessary structure for, in 1980, introducing one of the most important innovations of the [bus] system that would draw attention of Brazil and other major cities of the globe: The Integrated Transport Network (ITN), which, through terminals, allows the interconnection of all lines and transfers for up to four distinct directions with the payment of a flat fare*" (002D2004). In Figure 17 we show the map design of the Integrated Transport Network, showing the Expresso bus lines corridors (in red, the North-South, East-West, and Boqueirão axes) the Interdistrict lines (in green) and their connection on the urban bus terminals (black dots).

According to Interviewee 14 (Field Notes), considered the father of the ITN system in Curitiba, the original idea behind creating in Curitiba a mechanism for allowing the physical integration of bus passengers was based upon the Paris subway system. Interviewee 14 went to Paris for taking a course and he realized that their system functioned as an integrated transport network. On the Interviewee's standpoint, Paris had the best subway system in the world because "*you could go anywhere [in the city] by subway*". Considering that Curitiba, at the time, did not have a network, he realized that "*transport is a network, we must integrate… and we started making the terminals and developed the Interdistrict [lines] connecting them*" (INT14). Although being considered an urban innovation in terms of bus transit systems worldwide, the inspiration on the French experience is also evident by the following excerpt of Interview 11:

> *"Obviously that there were other things happening around the world. You started looking at Paris' subway network. It might be a coincidence, but if you look at Curitiba as a transport network […] it is kind of that [Paris] as an integrated network. I think Paris is one of the cities with the oldest integrated network and it was subways. Then comes another principle: beyond all the development comes the growth of the axes, that is the famous figure of the spider's net that you see at URBS' flyers, the main structure and the circles that are the Interdistrict [lines]. It is kind of the RATP [Régie Autonome des Transports Parisiens] in Paris"* (INT11).

The urban innovation through the implementation of the Integrated Transport Network provided the system with an upgrade in terms of efficacy as can be inferred

from Euclides Rovani's account: when URBS[24] have "*measured recently the time of operation of the loading of an articulated bus inside a closed terminal: 182 people got on board in 89 seconds. If it wasn't on a closed terminal, this bus would have stay stopped for about five minutes for boarding all these people, because for getting into a bus, paying the fare at the moment of passing through the turnstile, it takes four seconds per person in average*" (039D1990). The establishment of the ITN was the baseline for the major technological leaps that were about to come in the 1990s as we present in the next two sections.

4.1.4.4 The tube stations and the Speedy bus lines

While the Expresso system with articulated buses and the Integrated Transport Network proved to be a very efficient mass transport system, there were still certain bottlenecks that needed to be addressed by the City Hall. As Allan Cannel (one of the masterminds of the development of the bus rapid system in Curitiba) tells, "*[w]ith the continued growth of demand and the saturation of some of the transport axes, however, Curitiba opted for the development of new technology to increase the efficiency of the bus as a means of Mass Transport. The first solution was the introduction of the 'speedy' buses (Ligeirinho), a direct service between 'tube' stops, placed on average 3.2km"* (003D2008).

Even though the development and implementation of the Speedy bus lines and tube stations "*were all simple innovations, [because] it doesn't demand much structure and it is fast*" (Field Notes, INT14), it is perhaps the greatest urban innovation in Curitiba's transport system. According to the media coverage at the time of the announcement of the direct lines, Curitiba would become "*pioneer in tube stations*" (Gazeta do Povo, 1989N412) because it would be "*the first Brazilian city to adopt the system of 'intermediary stations' in the long routes with high demand*". Moreover, Carlos Ceneviva, Secretary of Transport of the City of Curitiba at the time and considered the "father" of the speedy bus lines, argue that "*it is an innovation in terms*

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[24] URBS (Urbanização de Curitiba S/A) is a public company (City of Curitiba) that became the manager of the transport system during the 1980s. Thus, from the mid-1980s on, IPPUC was designated to the overall planning of the city, while URBS was designated to plan, manage, and operate the bus transport system of the city (INT5; INT10; INT14).

of public transport, and it comes to complement the system that we already have" (Revista Istoé, 1991N428).

FIGURE 18 – SPEEDY BUS LINES AND LEVEL BOARDING SYSTEM BASED ON TUBE STATIONS

SOURCE: Revista Veja (2018)

The new system increment started to be called the "surface subway" because of its new features and also because, with the tube stations, the transport system would reach an "*ideal number of 18 thousand passengers per hour and per direction, almost the same numbers reached by the subway in Rio de Janeiro, [which is] about 22 thousand passengers per hour/direction*" (Correio de Notícias, 1989N558). Istoé magazine mentions that "*the main innovation of the speedy bus is on the loading and unloading – operations made on tube stations that, beyond [providing] comfort to passengers, confers to the city a futuristic look*" (1991N428). Such innovation provided the transport system with more efficient processes, permitting it to reach an "*operational speed [of] up to 30 kph"* (003D2008) *by* making "*the passenger's loading process four times faster, permitting the loading of up to eight passengers per second. At the conventional stop, with stairs and fare purchase taking place inside the vehicle, the maximum loading capacity is of two passengers per second*" (URBS, 031D1992). The excerpt below details how the speedy bus improved Curitiba's mass transport system in terms of operational efficacy:

> *"[A] simple and innovative device contributed for speeding the bus: a glass and steel boarding station shaped like a tube, with 33 feet in length and nine feet in diameter, which allows for fare purchase to be made in advance, and loading and unloading of passengers to be made at the vehicle' level, without the use of stairs. Passengers pay their fares to a tube attendant while passing through a turnstile when boarding the tube"* (URBS, 031D1992).

As Figure 18 shows, the passengers would access the tube stations and pay their fares to attendants located beside the turnstiles, dwelling inside the stations until the bus arrives. Once the bus stops, the passenger is allowed to access the bus interior through ramps that are adapted in the bus doors. The loading and unloading operation occur simultaneously, conferring above-average operational speed to the system as well as comfort and protection from inclement weather (which Curitiba is known for) for the passengers of the bus transport system.

The idea of "*having tube stations and having a direct bus [line], [was] due we were working with trunk lines, even being express, but [it is] stopping. So why not have a direct line between terminals? That's how the Speedy came up*" (INT5). Furthermore, Interviewee 17 tell the rationale of developing this innovative bus transport that would resemble the operation of subways, specifically considering that the system was designed for providing very short dwell times, "*because the mass transport system is thought exactly as it was a subway, as Jaime [Lerner] uses to say, to 'metronize' the bus, that is, no stairs for accessing it, boarding in the same level, prepayment… you get into the tube, the bus comes, articulated bus or whatever, the doors are synchronized, you open the bus doors along with the stations' doors*". (INT17). He adds:

> *"It was really nice because the [Expresso] busways started getting saturated with 10-12 thousand passengers. So, the idea was to create direct lines, because there were people that didn't need to stop every 600 meters, so we decided to create the Speedy [bus]. It would run on the outside [of the busways, on the fast lanes], it would run fast for stopping only on integration terminals, […] on the tube stations that would be placed inside the terminals or in certain bus stops that have a very high demand of passengers and it was the tube station that would do the integration So that was a great idea, it was Ceneviva's [idea], that it had to be a direct system that would not stop in too many bus stops and with speed, with reduced commuting time because otherwise, you would not be able to compete with the automobiles"* (INT17).

For implementing the Speedy bus lines and making the integration of the bus with the tube stations, the City Hall, IPPUC, and URBS had call their long-time partners (Volvo and Marcopolo) to develop the appropriate vehicle for "*attending the innovative*

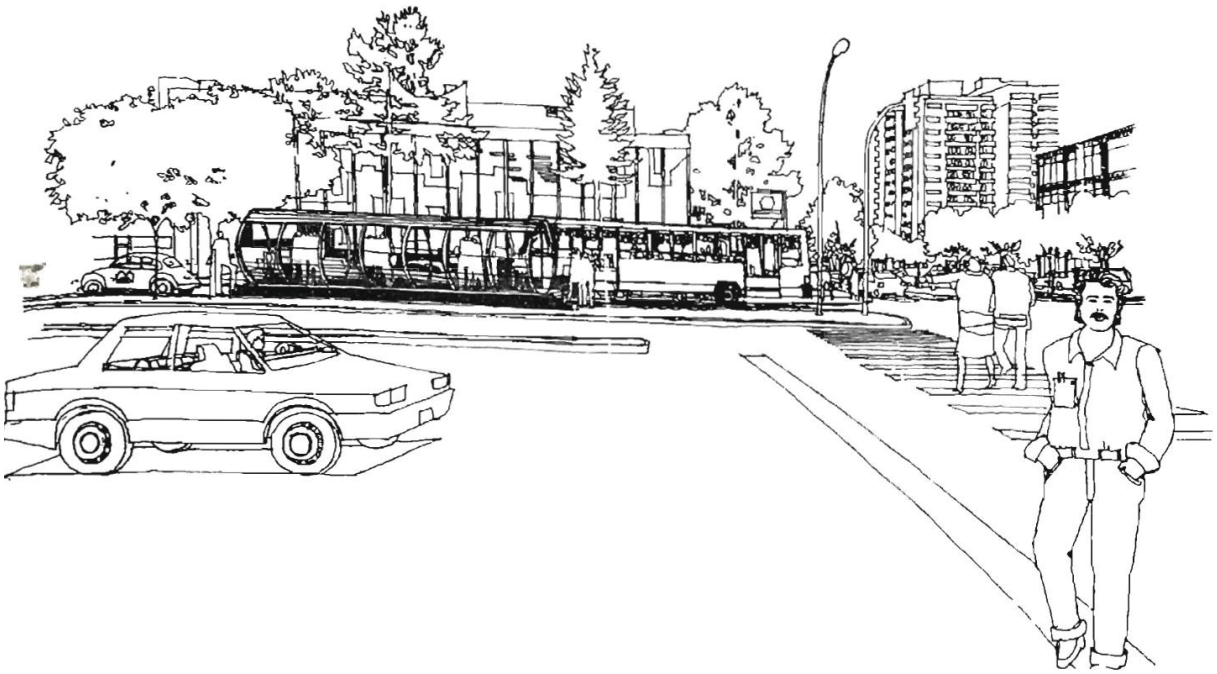
features of the collective transport system proposed for the city" (Marcopolo, 081D1999). However, it was not an easy venture. According to Luiz Hayakawa, president of IPPUC at the time of Speedy bus development, "*[t]here was discredit from the bus manufacturers, from Marcopolo, thinking that this thing would not work well. Of course, it's everything new. The doors are on the left side; there are no stairs, with a new conception of the door because the door itself would serve as a ramp for accessing the tube*" (041D1991). Two main interventions were necessary for implementing the Speedy lines: the height of the vehicle (that should be aligned with the tube station platforms), and the door should be reversed from the right side to the left side, as notices Alan Cannell:

> *"The vehicles have doors on the left to simplify access between the road network and the terminals. They have a capacity of 110 passengers, including access and space for wheelchairs and prams. This simple, obvious idea – putting the doors on the 'wrong' side – had two effects on local transport planners: they were stunned at their stupidity in not thinking of this earlier, and quickly perceived that this could be used to simplify busway design"* (003D2008).

Beyond the vehicles [buses], the feature that effectively materialized the transformation of the Expresso bus system into a mass transport system was the tube station. It was "*conceived by Jaime Lerner – that sold the idea to Rio de Janeiro in 1984 when he had advised Leonel Brizola's government*" (Revista Veja, 1991D428). As recalled Interviewee 23, "*Jaime [Lerner] was giving a consultancy for [the city of] Rio de Janeiro, and politics there was about to change and everybody that has worked here was supposed to work there, including me. […] But things have changed, and it didn't work out, but they made a prototype of the tube stations there*". Five years later, Jaime was back at Curitiba's City Hall as a mayor and decided to implement the idea in the city of Curitiba, as evidence from the excerpt below suggests:

> *"The tube station was thought for Rio de Janeiro, we were working with [Leonel] Brizola at that time and we had to revolutionize Rio de Janeiro's transport system. We made the mockup here [in the room], Jaime's office was here, in this place where we are, oddly enough, thousands of coincidences… And then we made the mockup here, Abrão [Assad] made his design, [it was] brilliant [see Figure 19], and we took it to Brizola saying that we would do this and that. He didn't buy it, he thought it was too avant-garde for that time. The first prototype was made in Magé, in [the Stata of] Rio de Janeiro, that is the hottest place I've ever been in my whole life, and people were saying that it [station] would be too hot because it was made of glass […] And the tube station that Brizola didn't want to implement was a success, fabulous, something that changed that concept of bus that now is called BRT"* (INT17).

FIGURE 19 – ABRÃO ASSAD'S DESIGN OF THE SPEEDY BUS SYSTEM WITH TUBE STATIONS



SOURCE: Indústria e Comércio (1990N413)

The impact of the tube stations for the mass transport market is remarkable. As Alan Cannell address, "*the tube [station] became something of an icon in the transport world – a symbol of the potential new image of modern, high-capacity bus systems – even gracing the cover of the magazine Scientific American*" (003D2008). Beyond making it to the cover of an important magazine from the United States, "*[i]n 1992, as part of Earth Day celebrations, Curitiba lent New York four of its tubular stations and buses, and for six weeks in late spring the Speedybuses looped through Lower Manhattan from the South Street Seaport to South Ferry*" (New York Magazine, 1995N614). This trip to New York and sponsored by the MegaCities Project (Jornal do Brasil, 1992N613), was supposed to feature only the tube stations. However, as Interviewee 23 tells, "*Jaime [Lerner] was the mayor and said: 'but taking the tube stations alone? It's not going to work; they are not going to understand what it actually is. So, we are going to make the system there we are going to make one line' [the Lower Manhattan line as Figure 20 shows], and we designed where it would run and we had to take four stations and two buses*" (INT23).

FIGURE 20 – SPEEDY BUS LINES BEING TESTED ON THE STREETS OF MANHATTAN, NEW YORK, UNITED STATES, IN 1992

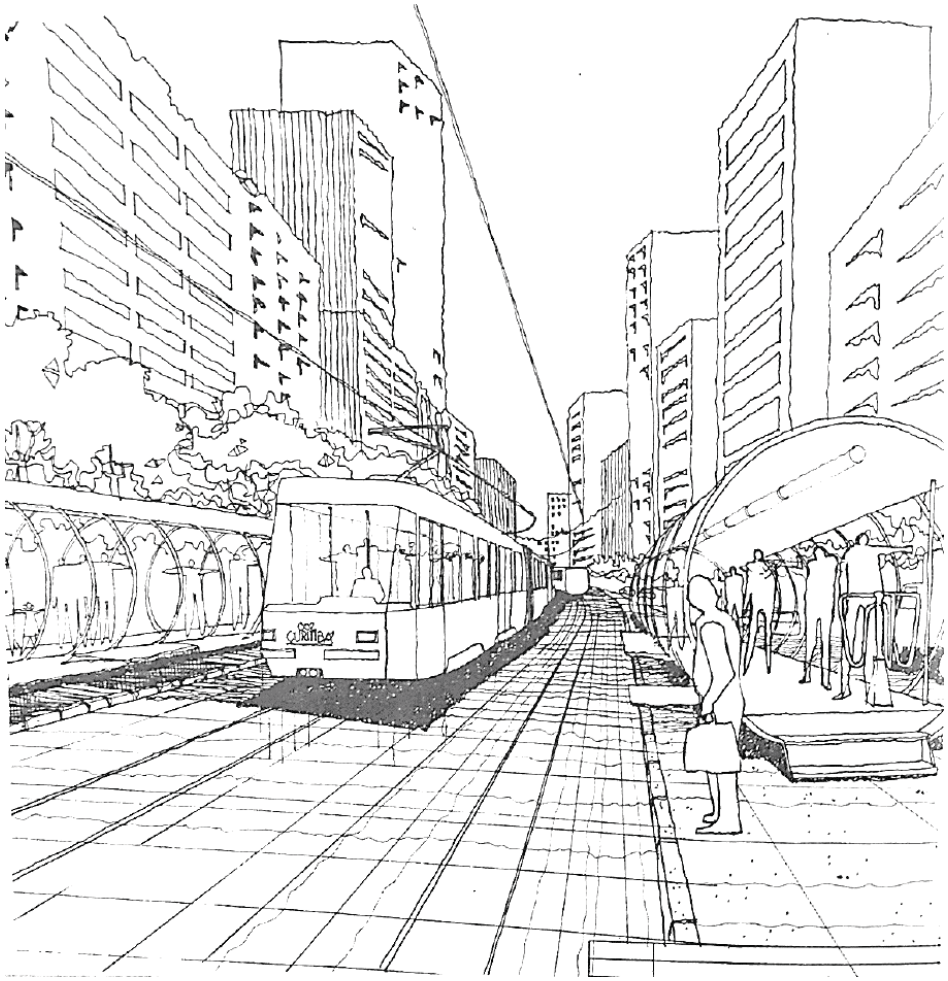
SOURCE: Marcopolo (081D1999)

4.1.4.5 The bi-articulated buses

When the city of Curitiba implemented the Speedy bus lines and the tube stations, it was taken-for-granted that it would represent the intermediate solution for the ultimate mass transit of Curitiba, the electric tramway. As described in the Correio de Notícias newspaper, "*the most revolutionary measure in the transport area is [going to be] the comeback of the tramway to the streets of Curitiba […] The new tramway, however, is a vehicle of high capacity, capable of solving the city's problems in this area [transport] until the year 2020*" (1990N562). As evidence of the City Hall's intention at the time, in 1991 the City of Curitiba presented the "Modern Tramway: the path for the future" (071D1991) project, which predicts the use of light-rail vehicles stopping in the recently implemented tube stations as Figure 21 shows. The implementation of the project had received funding from the World Bank at the time

(002D2004). However, the electric tramway project was abandoned because "*it became impracticable due to its high costs*" (O Estado do Paraná, 1992N389).

FIGURE 21 – THE MODERN TRAMWAY REVISITED IN 1991

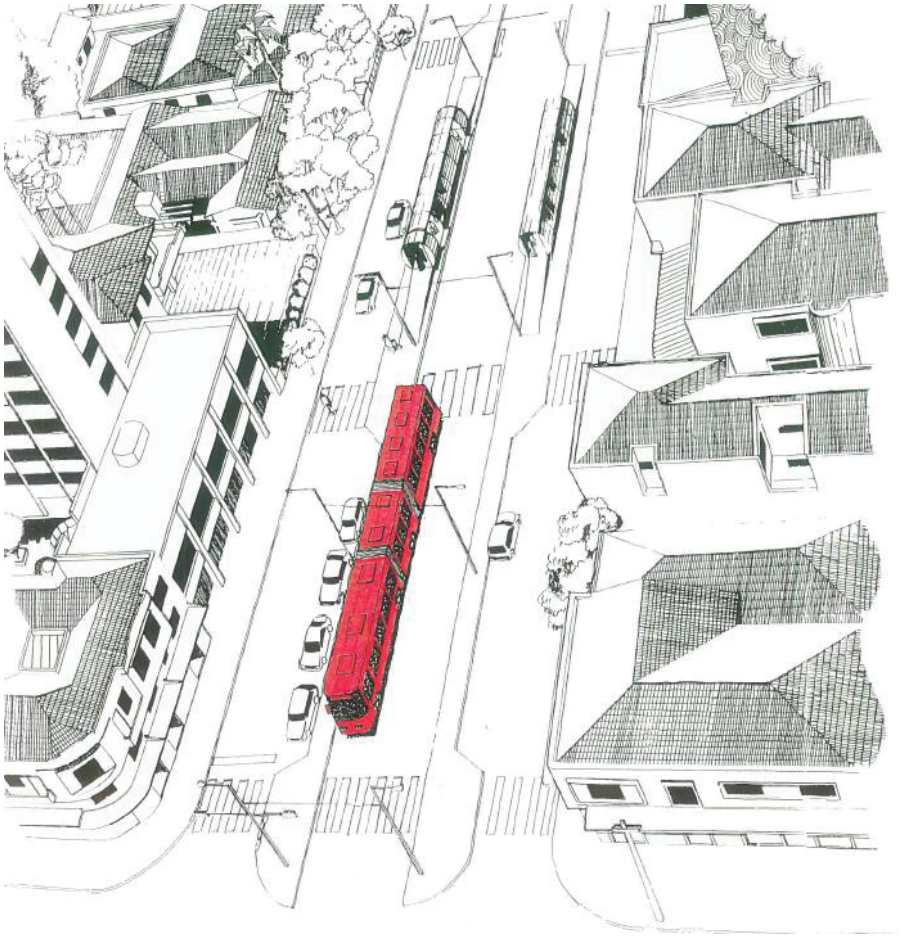


SOURCE: IPPUC (071D1991)

Thus, still in 1991, Curitiba decided once again to invest on the improvement of the existing transport system infrastructure, leading to Curitiba's last major urban innovation in terms of mass transit systems: the development of the bi-articulated buses (Correio de Notícias, 1991N386), or in Jaime Lerner's word the "*Tramway Over Wheels*" (Jornal do Estado, 1992N396) detailed in the City of Curitiba's "*Project of Collective Transport of Curitiba: Bi-articulated Bus*" (025D1992, see Figure 22). As data from URBS (031D1992) show, this plan was put into practice when "*[i]n March 1992, in partnership with Volvo do Brasil, the City of Curitiba decided upon a new project: to implement a bus line [with] 25m-length vehicles, capable of carrying 270*

passengers per trip. The project was developed in just a little over six months, and in December of that same year, the first line was inaugurated"[25]. As the former mayor Jaime Lerner asserts, "*the bi-articulated was a huge bus; it would carry 270 Swedish (and 300 Brazilians)*" (043D2003).

FIGURE 22 – THE BI-ARTICULATED BUS PROJECT



SOURCE: IPPUC (025D1992)

The bi-articulated bus represents an urban innovation in the bus transit system context because "*it is a purely Curitibana creation. It was developed from an idea that was born at URBS by the local Volvo factory and by Volvo in Sweden, in joint work, since there is nothing similar to this kind of vehicle in the world with the features that will operate in Curitiba*" (Jornal do Estado, 1992N396). Moreover, beyond the vehicle

[25] Detailed accounts on the implementation of the bi-articulated bus lines as the mass transport system in Curitiba can be found in the City of Curitiba's "*Project of Collective Transport of Curitiba: Bi-articulated Bus*" (025D1992) and in the "*Project of the Mass Transport System*" (001D1993).

itself, the start of the operation of the bi-articulated bus was acclaimed by the newspaper article "*Curitiba innovates again: today inaugurated the Bi-articulated*" because it was "*the first high-capacity bus system, running on dedicated traffic busways*" (Gazeta do Povo, 1992N402). Interview data also show that the "*bi-articulated was a success because of its capacity. If you compare the bi-articulated [bus] with the tramway, it's the same [passenger] capacity*" (INT23), and the official advertising of the City of Curitiba explored such feature (Figure 23) by claiming that in Curitiba "*the collective transport became even more collective*" (Revista Manchete, 1995N580).

FIGURE 23 – CITY OF CURITIBA'S OFFICIAL ADVERTISING FEATURING THE BI-ARTICULATED BUS

SOURCE: Revista Manchete (1995N580)

Moreover, according to Interviewee 17, The rationale behind the development of the bi-articulated project was based on the fact that "*the system started to become saturated, [thus] we needed vehicles with higher capacity"* (INT17). However, the bus

industry worldwide was not ready to produce bi-articulated buses in the volume necessary to attend Curitiba's demand. Thus, Jaime Lerner went to Sweden, through contact from Karlos Rischbieter (who was a Volvo director himself), with the intent of convincing Volvo to buy-in into the bi-articulated bus endeavor (043D2003). Evidence of the novelty of bi-articulated bus project and the convincing work necessary to make it into a reality is also presented in excerpts below extracted from Interview 23:

> *"This thing of the bi-articulated bus, it wasn't made anywhere in the world, you couldn't buy it from any manufacturer […], and we were always there at Volvo's factory pushing the manufacturers for them to make something bigger, we wanted a big bus. […] So, we insisted so much that they ended up making the bi-articulated [bus]. They were making it secretly, it was a worldwide secret, nobody knew about it […]. We said, 'we have the articulated [bus], we want it bi-articulated, it got to be bigger, you got to put more than two hundred people inside of it'. And they ended up buying [our idea]"* (INT23).

Such technology-push attitude of the City Hall, IPPUC and URBS for delivering urban innovations to the city's population is also mentioned by Interviewee 19, who argues that "*Curitiba was the only city of the world to say, 'I want you [industry] to develop something we call bi-articulated [bus]', not a single bus manufacturer had ever made a bi-articulated bus chassis in life*[26]*, everyone had articulated [buses], in Germany, there are articulated buses since the 1950's*" (INT19). But why would private organizations buy the City Hall's ideas? For Volvo, they ended up creating a whole new market with the advent of the BRT, and as mentioned by Interviewee 5, such market was not limited to Curitiba, since Volvo "*made it for Curitiba and sold it to the world*" (INT5). Regarding the private bus operators, although the costs of developing (US$ 9,7 million) and acquiring bi-articulated bus (US$ 250 thousand each bus) technology were 90% made with private funds (O Estado do Paraná, 1992N389), Interviewee 18 notices that such investment would pay-off because of the overall reduction in the system's operational costs:

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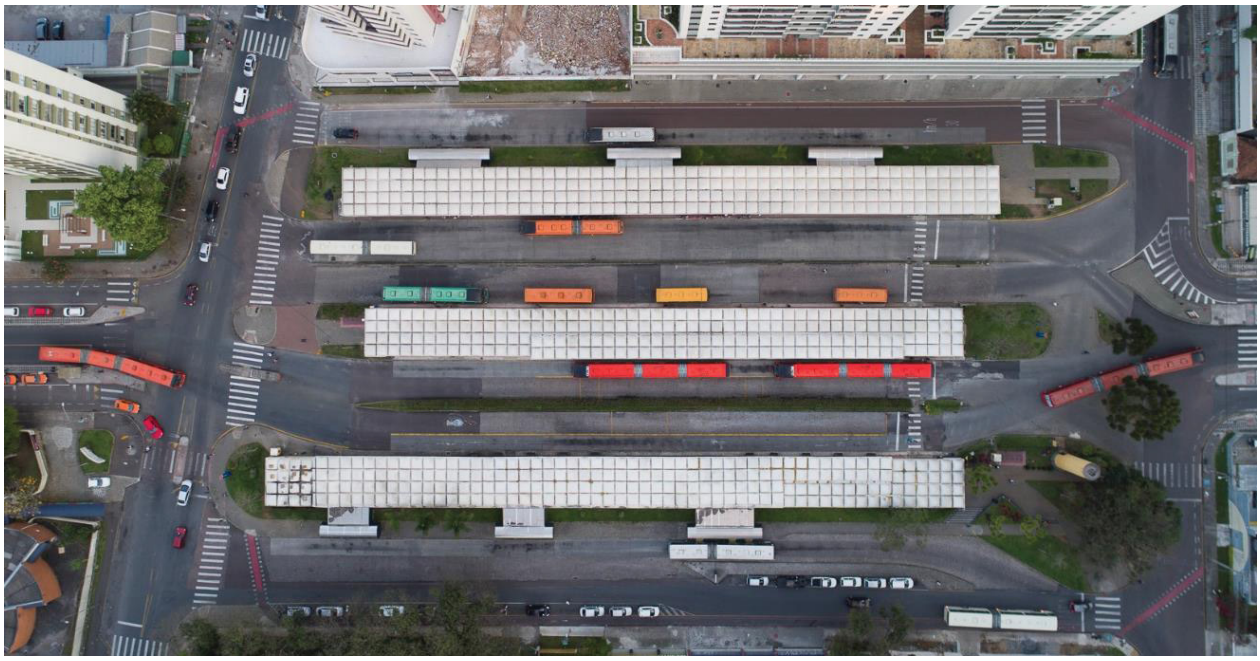
[26] Although the use of the bi-articulated bus as a mass transport system, on dedicated busways, level-boarding, and prepayment (i.e., as bus rapid transit system) can indeed be considered a major urban innovation, the interviewees account of the Volvo's bi-articulated bus as the first in the world is not accurate (with exception of Interviewee 11, who cited the Megabus). As the website "Dário do Transporte" <https://diariodotransporte.com.br/2017/12/05/ biarticulado-com-motor-dianteiro-transportou-passageiros-pela-primeira-vez-nesta-terca-feira-em-curitiba/> asserts The first bi-articulated bus of the world started to operate in the streets of Munich in 1982, manufactured by the German automaker MAN (model Sgg280H). Another bi-articulated bus model was also used in Bordeaux in 1986, manufactured by the French automaker Renault (model GX237, called Megabus).

> *"When the BRT was created the idea was, 'today you operate here in this [bus] corridor with 100 buses, if I'm going to operate with articulated or bi-articulated [buses] I am going to need 60 and 40 [respectively]. Hey, I'm going to operate with the bi-articulated [buses] and I'm keeping the minimal frequency there, and hey, I needed 300 guys to work here and now I'm going to need only 120 [people]', so, it started to impact the operational cost of the system"* (INT18).

FIGURE 24 – CURRENT CONFIGURATION OF AN INTEGRATED TRANSPORT NETWORK TERMINAL IN CURITIBA



SOURCE: Photographer Guilherme Pupo's personal collection (2020)

With the bi-articulated bus in operations, the Integrated Transport Network of Curitiba took the shape that was sold to the world as the innovation called the bus rapid transit model. In Figure 24 we show the final configuration of an integrated bus terminal in operation, with bi-articulated bus stopping on platforms (red), Speedy bus lines stopping on tube stations placed on the outer sides of the terminal (silver buses on the upper and lower levels of the figure), Interdistrict lines (green), feeder lines that moves people to the inner neighborhood (orange), and conventional buses that take passengers straight to the city center (yellow).

Finally, for summing up this field narrative that intended to map and understand the path of development of the urban innovations that led to what is known as bus rapid

transit system, in Table 7 we present the chronology of the innovations we mapped[27], the main actors identified, as well as we present the four stages of development that identified in our field narrative.

TABLE 7 – CHRONOLOGY OF CURITIBA'S URBAN INNOVATIONS THAT LED TO THE DEVELOPMENT OF THE BUS RAPID TRANSIT SYSTEM

Stage	Innovation	Year introduced	Main actors	Impact on the transport system
Pre-market	Trinary System	1972	IPPUC, City Hall	The trinary system provided Curitiba with the opportunity to become the first city with dedicated busways separate from regular traffic. Moreover, the Trinary System was the backbone of the change of the planning of the city towards linearization and ordered growth through mass transport.
	Pedestrian streets network	1972	IPPUC, City Hall, Abrão Assad.	At the time, closing the XV Street and other adjacent streets was important in terms of transport because the pedestrian streets network started to function as a connection between the main Expresso bus routes.
Market emergence	The Expresso bus	1974	IPPUC, Marcopolo, Cummins.	The Expresso was the first bus exclusively manufactured with the purpose of serving an urban collective transport system. Before the Expresso, buses were made upon truck chassis, providing no comfort or safety for the passengers.
Market consolidation	Prepayment system (automatic ticketing)	1979	IPPUC, private bus operators	Creating prepayment automatic stations inside the Expresso buses allowed a faster boarding of passengers.
	Social fare	1980	IPPUC, City Hall, private bus operators.	The first flat fare system implemented in Brazil made possible to create a subsidy system in which user of shorter lines would

[27] A full chronology of Curitiba's mass transport system development is available in Appendix E.

				pay the same fare of users of long lines (that used to pay much more in the previous fare system).
	Integrated Transport Network	1980	IPPUC, Abrão Assad (design), private bus operators.	The physical integration terminals were relevant because, after their implementation, the passenger could go anywhere in the city paying a flat fare (using Expresso, Interdistrict, and Feeder lines).
Market expansion and diffusion	Tube stations	1991	URBS, IPPUC, Abrão Assad, FAM	The tube station was the most impactful urban innovation in Curitiba's transport system because it allows the passenger to board the bus at the same level of the station and to prepay the tickets before accessing the station. With the tube station, Curitiba's transport system became known as the surface subway.
	Speedy bus lines	1991	URBS, IPPUC, Volvo, Marcopolo.	The Speedy bus line was an innovation that complemented the tube stations. The buses were adapted to stop at the tube stations by placing the doors on the "wrong side" (left) and by placing ramps (platforms) that connects the bus to the station.
	Bi-articulated buses	1992	URBS, IPPUC, Volvo, Marcopolo, Ciferal.	The "tramway over wheels" impacted the transport system by giving it a passenger capacity compared to the modern tramways (VLTs). With very high frequency, the passenger/hour rate is the same as many subway systems around the world.

SOURCE: The authors (2020)

These of the stages described above (pre-market, market emergence, market consolidation, and market expansion) had served to guide the data analysis and presentation of the emerging process theory discussed in the next chapter of this doctoral dissertation. The first stage, pre-market, represents the period in which there was not even a bus market established in Brazil. The second stage, market

emergence, represents the period in which Curitiba's Expresso system pushed for the development of a bus-specific market in Brazil, which gained more traction when Volvo decided to open a production plan in Curitiba in 1978. The third stage, market consolidation, begun when the city of Curitiba integrated the Expresso bus lines to the whole transport system (creating the Integrated Transport Network) and added to it incremental innovative features (e.g. automatic ticketing). The fourth and final stage of our analysis, market expansion and diffusion, represents the period in which radical changes in the system established Curitiba's Expresso system and Integrated Transport Network as the role model of a bus rapid transit system (prepayment, level-boarding, high frequency, high capacity).

4.2 THE EMERGENCE OF BRT AS A HYBRID MARKET

In this section, we aim at analyzing how the interplay between social construction of market (by IPPUC, the City Hall, URBS, private bus operators, bus manufacturers, regulators, financial institutions, etc.), institutional complexity and institutional work influenced in the process of emergence of the bus rapid transit market as a hybrid market. Thus, this section is built upon three temporal stages identified in the previous section (Field Narrative) and upon our data coding process. In each stage, we characterize institutional complexity by identifying which logics influenced the BRT market in each period. Moreover, we identify which kind of institutional work those social actors resorted to lead to market hybridization in each stage.

We begin with the analysis with the transition from pre-market to hybrid market emergence (first stage: between the 1960s and 1970s), followed by the analysis of the transition from hybrid market emergence to hybrid market consolidation (second stage: between the 1970s and 1980s), and we finalize the analysis with the transition from consolidation to expansion and diffusion of the hybrid market (between the 1990s and 2000s).

4.2.1 1960s-1970s – From pre-market to hybrid market emergence

The transition from pre-market stage to the emergence of the bus market in Curitiba started with the creation of the trinary system and the idea of humanizing the

city, that is, giving priority to pedestrians and to public transport instead of prioritizing car traffic as the majority of medium and big cities was doing at the time (large avenues, overpasses, trenches, etc.). As our data show, this transition gained traction in the decade of 1970, because that is when Curitiba "*has that thing of consolidations, that is the implementation. Maybe this is the most representative decade of the program of transport development because, before that, it was an idea, in the 1970s is the execution. 'Let's make it viable, [we] implemented and consolidated'*" (INT19).

In this period, institutional complexity was already in place, since IPPUC and the City of Curitiba City Hall were facing external contingencies at National and International levels (especially the Oil shortage crisis – 024D1981, 091D1974) that were forcing them to combine the **humanizing logic**[28] with a more cost-oriented logic, which here we refer to a **cost-efficacy logic**[29]. However, although the prevalence of a cost-efficacy logic was evident since the lack of natural resources (oil) ended up bringing the rationale of "*[w]hat comes after everything are costs, the transport system is [about] costs*" (INT18), the excerpt below from Jaime Lerner's interview to Aramis Millarch shows the **symbolic work** invested by the City Hall to defend the implementation of the Expresso bus system on exclusive busways based on a combination of the cost-efficacy and humanizing logics:

> *"The Oil crisis delivered the cities' problems on a tray; they delivered the cities' problems on a tray for [public] administrations. But why did it deliver on a tray? Because it conferred, automatically, priority to public transportation. Now we must do it no matter what. So, giving freedom to the city center, giving freedom to the points of encounter so they can get revitalized. I mean, the bottom line is that […], if there was not an Oil crisis, cities would be walking in the direction of an even more chaotic situation. I think this is a very positive consequence because it put as a priority the problem of the majority of the population, that is collective transport"* (091D1974).

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[28] At first, we coded our data regarding this broad concern about social issues (quality of life, human health, inequality and poverty reduction, etc.) as a "social logic". However, considering the wording used by the interviewees and by IPPUC members in document and in newspapers articles, we decided to label it as "humanizing logic" because it represents better the conceptualization of the transport system not only as a mean of developing a more just system por impoverished people, but to the whole city's population as a whole, regardless of economic/social classification.

[29] Instead of calling it a "market logic", we decided to label the more cost-benefit oriented actions as a "cost-efficacy logic". This is because our data reveal that for public and market actors, a "good deal" in terms of market relationships in the transport field will literally mean getting the best value for the money, that is, the investments being made, they will result in more efficacy in the system for those who run it and in higher return on investments for those who invest on it (bus operators, manufacturers, investment banks, etc.).

Additional evidence to support the coexistence of the humanizing and cost-efficacy logics is also present in the newspaper article "*Express bus, a revolution in transport*", published by Gazeta do Povo in February 1974 (1974N325), in which Rafael Dely uses on symbolic work to defend IPPUC's plan of investing resources on the implementation of the trinary system with exclusive busways in detriment of implementing a policy that would be oriented to the individual transport.

> *"Inserted in a philosophy that points it as the only means of, in the short-term, impeding the car saturation in the central road network are expensive, either on an economic or a social standpoint […]. Finally, Rafael Dely stresses the economic and social onus of implementing express lanes [for traffic] From an economic standpoint, it would mean the concentration of an invaluable amount of financial resources that the Municipality would hardly afford. Regarding the social aspect, implementing new express lanes would represent the destruction of a whole urban landscape and of a culture consolidated throughout the time"* (Gazeta do Povo, 1974N325).

Despite the prominence of a cost-efficacy logic to a greater extent and a humanizing logic to a lesser extent, the transition from pre-market to market emergence through the development of the Expresso bus system also was marked by the rise of an **aesthetic logic**[30]. This logic came into the city's urban planning through the creation of the School of Architecture at the Federal University of Paraná in the mid-1960s (INT13; INT20; INT23). It is noteworthy that, previously, urban planning was in Curitiba mainly developed and implemented by engineers, that is, professionals more aligned with a cost-efficacy logic than to an aesthetic one, as the excerpt extracted from the interview 23 shows:

> *"Who used to make engineering stuff in the cities were engineers, because it didn't exist architects, nor [urban] planners, nor anything [else] in Brazil, it didn't […]. We were architects, and the engineers were [working] on other areas, they were at the DER [State Department of Roadways], DNER [National Department of Roadways], I don't know where, but they were engineers that dealt with roadway issues, not with city issues"* (INT23).

The main elements representing the **material work** for establishing an aesthetic logic in the early stages of market emergence were the domed bus stations

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[30] We define as "aesthetic logic" the one that influences practices and symbols through elements of design, architecture, form and elements, and arts. This logic was brought into the bus market by IPPUC and City Hall architects, most of them graduates from the School of Architecture at the Federal University of Paraná.

(see Figure 15 on page 103) and the Expresso buses themselves (the Marcopolo Veneza Expresso model, see Figure 10 on page 97 and Figure 11 on page 98). Regarding the bus stations, Abrão Assad, the architect responsible for the design of the domes, uses symbolic work to bring the aesthetic logic into the conversation about the implementation of the Expresso bus system by stating that "*the stations 'are going to create the image of the city' – the physiognomy of the stations – identified with its use and location and that participates of the plastic language of the city's list of urban equipment*" (Jornal Imobiliário, 1974N327). In what concerns to the Expresso bus, evidence show the material relevance of the bus for embedding the emergent bus market with an aesthetic logic because, as Interviewee 19 shows, "*the Veneza [Expresso] was the first bus conceived for urban transport on a standpoint of having a [specific] layout [designed] for passengers*".

Counterintuitively, we could find only very raw evidence of practices and symbols related to the **ecology logic**[31] in the development of Curitiba's mass transport system, even though the "*concept of Ecological City comes since the decades of the 1960s-1970s […], it was a thing really ecologic in the sense of respecting the nature*" (INT17). The first evidence of an incipient concern with ecological issues is presented in the Gazeta do Povo newspaper article that states that "[t]*he express buses also arise as a relieving element of environmental and atmospheric pollution that are verified in any urban center with the dimensions of Curitiba because its presence tends to decrease the number of vehicles concentratedly circulating in the central area*" (1974N325).

The second evidence of a symbolic work towards an ecology logic is the official advertising of the City of Curitiba, in which they argue that with the implementation of the Expresso bus system, the number of cars circulating in the downtown would benefit the environment because "*[w]ith fewer cars, less noise and less pollution, the central area is going to become way more pleasant for working, shopping, and even walking*" (Revista Panorama, 1974N053). The advertising reinforces this logic by presenting the Expresso bus logo system stylized with an environmental theme (Figure 25), which

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[31] The rationale behind labeling this logic as "ecology logic" instead of using "environmental" or "sustainable" logic is that when the BRT emerged in Curitiba, this was the term more widely adopted by the community at the time of market emergence (that is, 1970s). Sustainability is a concept that emerged (and became spread) only more recently, especially considering the transition from the 1990s the 2000s.

adds butterflies, flowers, and birds surrounding the Expresso logo, all of them placed above the “City of Curitiba” inscription.

FIGURE 25 – CITY OF CURITIBA’S OFFICIAL ADVERTISING PRESENTING AN ECOLOGY-THEMED LOGO OF THE EXPRESSO BUS SYSTEM

SOURCE: Revista Panorama (1974N053)

At the transition from pre-market to market emergence through urban innovations, our data show that the market for urban buses in Brazil was non-existent (INT19; Jornal Imobiliário, 1974N327). Thus, we find that the first step taken by IPPUC and the City Hall was concentrating their efforts on the allocation of resources and on developing the market infrastructure. We find four main types of work that Curitiba’s social actors had to practice towards developing the bus rapid transit market in the city: (a) building a capable team under a strong leadership; (b) developing the capability to seek for funding and to implement projects; (c) creating the market infrastructure and developing the value chain, and (d) learning the material and symbolic aspects of the market.

4.2.1.1 Building a capable team under a strong leadership

The first element that emerged as an allocation effort during the emergence of the BRT hybrid market was building a capable team under a strong leadership (human resources allocation). Our data show that the revolution that happened in the transport system of Curitiba was **a result of the work of a very capable multi-disciplinary team** that started being built during the creation of the IPPUC in 1965. As Interviewee 17 addressed, “*it is very important that in the decade of 1970, a group of technicians*

from a varied nature, such as engineers, architects, sociologists, a multidisciplinary thing, decided to change Curitiba. It was a great co-leadership from Jaime [Lerner], who already had all the planning on his mind and with his team" (INT17).

We also find evidence of the relevance of building a capable multi-disciplinary team for the emergence of the hybrid market in the discourse of Interviewee 13, who argues that "*in reality, the transport system came from the vision of this group, that was a team, a privileged vintage of professionals […] under [Jaime] Lerner's leadership, that was [composed of] Rafael Dely, Carlos Ceneviva, Cássio Taniguchi, Lauro [Tomizawa], Osvaldo Navarro, Abrão Assad […], it was a very good vintage at the time*" (INT13). Interviewees 5 and 20 mentioned the same names as members of the team responsible for developing the bus market in Curitiba, but also added names of Lubomir Ficinski, Domingos Bongestabs and Nicolau Kluppel (known as the mastermind of the planning and implementation of the main urban parks of Curitiba – 006D2016; INT17).

Our data show that having a very capable group of multidisciplinary professionals (mainly architects and engineers) alone would not be sufficient. So, what else did they have? A **strong leadership structure**, especially considering the role of Jaime Lerner as a leader, first as an IPPUC president, and later as the city mayor for three terms. In this regard, such leadership influence is shown by the fact of Interviewee 20 mentioning that "*Jaime Lerner is an entity, not a person*" (INT20). The leadership style imposed by Lerner during his tenure as mayor and IPPUC president was not an isolated factor, because as we find in the discourse of Interviewees 22 and 17, it ended up translating for his successors both at IPPUC and City Hall:

> *"The leadership role of Jaime [Lerner], of Lubomir [Ficinski] – many have forgotten him – was very strong. […] the Polish [Ficinski] managed steadfastly. Once I saw him wanting to beat up the Ministry of Transport at the time because they wanted to place the BR-116 highway into the September 7th Avenue [a structural axis avenue]. Lubo got out of the car and went after the guy. Saul [Raiz] was also another guy with leadership capacity, and memory […]. [T]he leadership capacity was outstanding, of course, but that was a different time"* (INT22).

> *"It used to work like this. When Jaime [Lerner] was the mayor, he went every Friday to IPPUC for dispatching, and once there, he wasn't the mayor, Jaime Lerner was an architect and used to go at it. He used to come with some crazy ideas, we used to argue a lot, always on an equal footing, since he was originally from IPPUC. And I did the same thing when I was the mayor, I went there every Tuesday [to dispatch with] the technical staff. Every new idea was submitted for being criticized, to be improved until it could reach the point in which it would be ready to go, to detail the project"* (INT17).

The excerpt above (from a former mayor and IPPUC president) shows the proximity that the mayors previously connected to IPPUC had with the institution's technical staff during their tenure in the City Hall. Furthermore, as Interviewee 8 asserts, technicians and mayors "**spoke the same language"; but the mayor always had the final words** during the decision-making processes. Still regarding the decision-making process, "everyone would pull the sardines to their sides, but at the time of the final decision, the biggest sardine was the mayor's, right?" (INT16). The importance of having the figure of the leader during the process of market emergence is also evident in the vignette told by the Interviewee 22:

> *There was a play, a Marília Pêra's [actress] piece from years ago, […] at the beginning of the decade of the 1980s. This actress played the role of Miss Daisy. Miss Daisy was a teacher, she gets into the stage and starts treating the audience as they were a bunch of kids fooling around. She takes a guy that is speaking loudly, and she grounded him. She comes and dominates the Guaírão theater, she dominates the audience in such a manner that everybody is scared to death of Miss Daisy.*
> *-'History Class. Class number one: Everybody wants to be Miss Daisy, everybody wants to boss'*
> *And that's a huge problem, because if you don't have a clear notion, institutionally speaking, 'Look, who's the boss here?', of a structure of action, how things happen, how they are done… what Jaime [Lerner] always said, how to make things happen… if those things are not clear, it leads to a paralysis"* (INT22).

4.2.1.2 Developing the capability to seek funding and to implement projects

The allocation element in which the actors invested their efforts during the first stage of market emergence (which is strongly aligned with the cost-efficacy logic) was seeking for funding to implement the transport projects. A clear connection with the former element (building a capable team of professionals) is evidenced here, since IPPUC and the City Hall went after individuals with the specific capability of "mastering the numbers", knowing where to seek for funding and also with the capability to implement the projects that had been financed to join the city's urban planning. As the excerpts below show, the first one, mentioned by Interviewee 19 was Alberto Paranhos, and the second one, mentioned by Interviewee 13, was Cássio Taniguchi:

> *"[Alberto] Paranhos is also from this French school [of thought], he is an economist and urbanist. He joined the folks that went to talk with Karlos*

> *[Rischbieter, president of the BADEP – Bank of Development of Paraná], they were architects and engineers and one or two of them knew Paranhos because they had been together in France. […] [A]nd Paranhos started to make costs sheets concerning how much would cost making a project [financially] viable, and then things started to look good because you delivered the project, buy-in into the project, and suddenly you show up with a costs sheet"* (INT19).

> *"Cássio Taniguchi was an extremely capable guy, a manager. He was from the ITA, a very intelligent guy, and he made projects viable. The issue is it's not hard to make a project because the guy that makes the project doesn't care at all for where the money comes from, how it is done or it's not. And Cássio [Taniguchi] actually had that capacity without distorting the project, making it viable and implementing it, and it was very helpful, especially for implementing the transport projects"* (INT13).

Furthermore, our data show that the development of a capacity to obtain funding was essential for the development and implementation of the trinary system, and as a consequence, of the Expresso bus transport system. Before obtaining such capacity, as we show below through the story told Interviewee 17, the City of Curitiba had many projects but did not have financial resources for translating those projects into real construction works.

> *"I remember that we had many projects but very few [financial] resources. As I had quit [the job at] the BADEP, that was the Bank of Development at the time, and I said, 'let's evaluate the municipality's debt capacity and let's go after the money because without money you don't make anything. You can have the best ideas, the most wonderful [ideas] of the world, but without resources, you stay at zero'. So, we checked and actually, there was not any financing yet at the City Hall, so we indebted the municipality, all its debt capacity. From this point on, things started to happen in practice"* (INT17).

Another element that our data show is the clear capability of the emerging bus market actors to contact key actors using **relational work** for **getting access to sources of funding that would allow them to implement their projects**. For exemplifying this point, IPPUC and the City Hall relied upon their connections with Karlos Rischbieter[32] for gathering funding for implementing the structural axes and the Expresso bus system, as Rischbieter tells in the following excerpt: "*Jaime Lerner takes over the City Hall in 1971. From 1972 to 1974 he implements the Master Plan. He came to me at the Bank of Development of Paraná – BADEP (successor of Codepar), which I presided at this time, and gather lines of credit for the transport*" (002D2004).

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[32] Established in the 1960s during the Master Plan development, especially due the fact that Karlos Rischbieter was married with Franchette Garfunkel Rischbieter, a former key-personnel from IPPUC.

However, public actors were not the only to develop a capacity of seeking for funding. Our data show that private bus companies (bus operators) also had to get external financial resources in order to implement the Expresso bus system designed by IPPUC and the City Hall. Dante Franceschi, president of the bus company Carmo and former president and councilmen of the SETRANSP (Union of the Bus Companies of Curitiba and Metropolitan Area), tells how the bus operators made use of relational work to develop lines of credit for financing their new branch of activity – providing and operating Expresso bus services in the structural axes.

> *"The new concept of transport, with an axis and feeder [buses], required the acquisition of 40 new vehicles. The investment [required] was tremendous, and we had a huge difficulty in obtaining the [financial] resources. […] After a trip to Brasília, we got to convince the Finame (that is a type of line of credit) to fund the [purchased of the] new fleet. The Brazilian Company of Urban Transport (EBTU) would also participate with 30%, making the Expresso project viable. Everything was a novelty both for Curitiba and for Brazil. […] But thanks to the contacts with federal authorities, the business owners of the transport in Curitiba, supported by the successive mayors, stated to count with regular lines of credit, allowing and guaranteeing the required fleet renovations and expansions within the terms defined by the public power"* (Dante Franceschi, 002D2004).

Our data show evidence that getting access to sources of funding was important. However, it also shows support to find that the social actors working for the emergence of a bus transport market in Curitiba many times needed to use symbolic work to **convince the banks and funding agencies that their vision would surpass any cost-benefit analysis** that they could rely their decision-makings upon. As Interviewee 23 argues:

> *"[W]e even proved to the international banks our vision [of future], because if you look closer, all that viability study they make, of cost-benefit, if you put all that on the paper, it will only be viable the issues that are already exploding, they did not fund any road [thinking] on the long-term. A structural [axis], they wouldn't have funded it, but they did it because we convinced them 'no, but we are going to have a city for the future, and we are going to need this'. Otherwise, they wouldn't have done it"* (INT23).

All the work for convincing for funding for implementing a bus-based transit system aligned with an urban development planning was a groundbreaking initiative by the city of Curitiba. Saul Raiz, former mayor, director of the DER, and State Secretary of Transport (002D2004) clarify that Curitiba has received the first funding ever conceded by the Work Bank for implementing a policy of urban development (that

is, implementing the 1965 Master Plan). As evidenced by additional data extracted from Interview 17, beyond the World Bank, the actors from the transport system of Curitiba worked towards convincing a wide range of financial institutions to invest their funds in the implementation of the Expresso bus system in Curitiba.

> *"Through the World Bank, the large amount of [financial] resources allowed the development of the [transport] system, and through all the money allocated to the opening of the axis at the Bigorrilho area – the East/West [axis]. It was during my administration [as the mayor], from 1975 to 1979, that the World Bank, for the first time ever, accepted to fund an urban development plan. This plan was funded but the international body and the [financial] resources arrived thereafter the end of my administration, allowing the execution of the whole construction"* (Saul Raiz, 002D2004).
>
> *"I remember that right at the beginning of the implementation [of the Expresso bus system], the World Bank has helped us through funding. For them to approve it was a pain in the neck, they had 500 thousand doubts, etc. I was in Brasilia, at EBTU, at Francisco's office, and there was an advisor for the World Bank and the guy said, 'this system is not going to transport more than 5 thousand passengers.' I looked at him and said, 'we are already transporting 10 thousand', then we started a discussion, they had to break up our fight there, 'are you thinking we are underdeveloped?' After that we became friends, but in the beginning, was tough. We had several financing contracts with Banco do Brasil, World Bank, Caixa Econômica, but it was a success that is all over the world now"* (INT17).

Interviewee 17 adds that once they had the projects, they got the funding for taking the projects out of the clipboard, and they were under the strong leadership mentioned above, the transport system started to become a reality: "*[h]aving money, projects, and someone whipping us to get things done, fantastic […]. And that's the key point of this thing. Planning is great, but with implementation, and preferably fast, at the same time"*. We find the same rationale on the discourse of Interviewee 22, which argue that *IPPUC "is a project powerplant, and if you make a lot of projects, then you make the funding easier. Do we have debt capacity? Yes, and do everybody wants to lend us money? Sure! Because we make things happen"* (INT22). The next step, then, was materializing the system, what we are going to address in the next section.

4.2.1.3 Creating the market infrastructure and developing the value chain

The third element of the **allocation work** necessary for establishing the hybrid market of the bus rapid transit in Curitiba in the transition from the 1960s to the 1970s was the creation of the market infrastructure per se, especially considering the

development of suppliers of the required equipment for implementing the transport system. As our data show, there were struggles to convince the industry that producing a bus for transporting passengers in urban areas instead of producing adapted trucks or road-specific buses would be a good deal for them. The first option was going after the bus market leader in Brazil, Mercedes-Benz. However, as the following excerpt from interview 17 show, they were not receptive to the idea of developing new technology, since they were doing well with the product they had to offer to the Brazilian market.

> *"The first Expresso bus was based in a German project from Mercedes-Benz, with wider doors, powerful engines, lower floors, all of that was our dream at the time. And we went to Mercedes and they said 'No way, we are selling truck-based buses here and we will keep selling it, it's not our business'. And they even had the bus in their headquarter in Germany. […] Then we went after Marcopolo and they agreed to make what we wanted"* (INT17).

Euclides Rovani (002D2004), one of the members of the IPPUC team also details the struggle it was to find manufacturers that would be willing to change their products and their production lines in order to attend the small demand of a medium-sized city in Southern Brazil. After a thorough search process, in the whole industry (chassis, engines, bus bodies producers) the City of Curitiba found their partners on Marcopolo for the bus bodies, Cummins for the rear-engines, and Van Hool for the lower chassis (Paulo Bellini, Marcopolo, 002D2004).

> *"In Brazil, up to that time, nobody had ever thought in a project of an urban bus, what existed was truck chassis with bus body, and that was [the reality] in every Brazilian city. And [Marcus] Corção went to IPPUC and designed a project for an urban bus, and started a very tough fight, that was convincing the industry to produce it. I know the fight he had with Mercedes-Benz because multinationals do not change their vehicles, no matter what. He did not get it with Mercedes, Volvo was not installed in Brazil yet, and who agreed to make the first bus was Cummins, with a production plant in the Northeast, in Salvador. It was a totally different project from the embodied trucks that we had at the time: lower platform, better power, wider entry and exit doors, etc. It was the first time – not only in Curitiba but in Brazil as a whole – that the public power would intervene in the urban bus operations"* (Euclides Rovani, 002D2004).

Jaime Lerner, the mayor at the time, personally invested his efforts to make the Expresso bus work and to find the partners that would buy-in to the idea of creating and producing urban-specific buses. The vignette below, reproduced from the

Interview 19, shows how Lerner ended up convincing Marcopolo to build the bus projected at IPPUC (with totally new interior design).

> *"I was with him [Jaime Lerner] when he went to Caxias do Sul to talk to Paulo Bellini, who was the powerful man at Marcopolo at the time, [Lerner said]*
> *'- I am going to do such a thing in Curitiba and you are going to make me a bus.'*
> *He [Lerner] went after CAIO, he went after Busscar [bus body manufacturers] and nobody had agreed [to make the bus]*
> *'- Man, this thing [bus] it's not going to work.'*
> *But Bellini agreed. And for the first time you had a bus in Curitiba that would be faster than other buses and that you would not sit front-facing, you would sit sideways. You saw how the internal layout was, it was like a train. I was in the meeting at Marcopolo, it was in 1971. We got into Bellini's office and their engineers were there, and Jaime [Lerner] started talking about the project.*
> *- 'This is the project.'*
> *One of the engineers replied:*
> *- 'But it is for sitting sideways?*
> *- 'Yes, it is for sitting sideways, in the main hall, passengers will be standing'.*
> *- 'Is it for carrying oxen? We don't make buses for cattle'*
> *- 'No, it is for carrying passengers. I am not ordering a bus for cattle, I am ordering a bus that can be reliable, efficient, fast, and that can carry the number of passengers that can maintain the fare values, the more passengers I can put into a bus, the cheaper the operational costs and the faster the passenger gets into his destination'*
> *And then they said*
> *'Wait, we are going to make this bus'"* (INT19).

As our data analysis reveal, IPPUC and the City of Curitiba were **"*demand developers because we used to think in things that didn't exist*"** (INT5) in the market. In other words, the allocation effort to make a hybrid market arise (with logics other than the purely market one) required the social actors to **provoke the industry to produce** (INT23) because everything needed to be developed, created, and tested in the Expresso bus system even before it could become an effective product on the marketplace (for other cities or countries, for example). Such a feature led to the creation of "*a favorable environment for innovation […], in which the public manager is interested in a solution and goes to seek on the market an alternative. […] Jaime [Lerner] came up with a solution [the Expresso bus] and needed equipment, a bus with certain features, so where did he go? He went to the market; he went to knock on the suppliers' doors*" (INT6).

However, the decision to join the Expresso bus project was not exempt of risks, thus, relying on **symbolic work** to convince the market actors (bus operator included) to invest in the new system and on **relational work** to develop a **trust relationship** with them was paramount, because, as notices Interviewee 11, viewing by "*the*

*companies side, it was a **'shot in the dark'** in terms of investments***"**. Moreover, manufactures and the bus operators "*trusted in him [Jaime Lerner] a lot, that's obvious […]. Really, there was a trust by their part for making those investments"* (INT11), which can also be evidenced by the excerpt from Dante Franceschi reproduced above (on page 130) and by the words of Paulo Bellini (002D2004), president of Marcopolo, reproduced below.

> *"Still at the beginning of the decade of 1970, when Marcopolo was sought by the City Hall of Curitiba to develop a new bus project, we know that we would have ahead of us more than simply a new model of vehicle, totally outside of the traditional standards [at the time]. We were faced with a huge challenge; it has involved all of our Engineering Department. There started the studies for the development of a truly urban bus, and we decided to invest deep on it. We believed in this new project developed in partnership between Marcopolo, Cummins, and the City Hall. It was something new and different"* (Paulo Bellini, Marcopolo, 002D2004).

In what regards to the negotiation process, Interviewee 19 argues that the deal was closed mainly because who was leading the negotiation with Marcopolo and with Cummins was Jaime Lerner: "*I went there [at Marcopolo] at the time, I was along [with Lerner]. […] Today I would say that [Paulo] Bellini was capable of saying 'alright, it's a championship [game], I am going to place all my bet here to see if there is not a penalty', and there could be a penalty kick and then he would lose. However, he agreed after a lot of diplomacies […] and it was because who convinced him was Jaime [Lerner]*" (INT19).

4.2.1.4 Learning the material and symbolic aspects of the market

The fourth and last element we identified in this period of resource allocation and creation of the market infrastructure is related to the material and symbolic work that was necessary for learning the system of codes, languages, symbols, and practices inherent to the emerging hybrid market. As interviewee 23 stresses, "*who knew anything about transport? **Nobody knew anything**, we had just heard something about [it]"* (INT23). The first challenge was defining the material aspect of the vehicle that would be used in the Expresso bus system. In this matter, Interviewee 21 clearly shows that they actually designed the bus without any prior knowledge about mechanical engineering.

> *I never knew anything about the vehicles' mechanics […] So we went there to Caxias do Sul at the bus body manufacturer [Marcopolo]. Me, Canalli and [Marcus] Corção, because he was the only mechanical engineer [of the team]. And it actually made the conversation easier, because they knew more about mechanics, much more, than we did, because we were newbies. But this conversation of people that don't know made things easier because we extrapolated the discussions. […] If you know too much about mechanics, about transport, you keep attached to it, but what happened there is that we didn't know anything about transport"* (INT21).

Thus, results show that the development of the bus transport market was due to "*a lot of experiments, lot of 'it works' and 'it doesn't work', everything [was] empirical*" (INT7). To exemplify this point, Interviewee 23 mentions the design of the structural axes and how it was challenging to finally get it right: *"I remember until today that the design of the structural [axes] was made by me.[…] I remember that I made the design of the angles of the corners, but there was a problem, cars were hitting it, running over it, the angle was too closed, then I changed it. Because we were* ***making, failing, and correcting***" (INT23).

Much of the development of the market was through *"**learning by using**, in the sense that using the system with all the difficulties of using it, requiting planning, changes, because the real world requires other things that sometimes the planning cannot foresee"* (INT7), and by **learning by doing**, because *"we didn't learn much at the [architecture] school […] 'I haven't learned at school, I have learned by doing' […], the things we have in Curitiba, we have learned by doing and imagining*" (INT23). Moreover, our results suggest that the emphasis was making the system work (INT23), and how it would be done was the responsibility of the personnel. As Interviewee 17 mentions, "*there is nothing better than '**grabbing your problems with your own nails'** for innovation to arise. […] [I]f you don't have enough knowledge about the problem, you will never innovate*" (INT17).

Finally, in what regards to the creation of a system of codes, languages, symbols, and practices for the emerging market, symbolic work of the market actors resulted in a series of changes in the nomenclature of things in the 1970s, what was noticed by the critical article published at Revista Panorama in 1974: "*The passenger becomes the user. The ticket becomes the fare. The bus becomes a transport unity. The collective transport becomes mass transport, 'applied' into the surface, elevated or underground. The organization of the transport becomes 'transit system'. The*

technical code or language it's not more than rambles thrown over the population" (Revista Panorama, 1974N053).

The transition from pre-market to the emergence of the hybrid market (influenced by cost-efficacy, aesthetic, humanizing, and ecology logics) was complete in the latter-end of the 1970s. Most of the efforts (material, relational and symbolic works) were concentrated in the allocation work for creating a market infrastructure, a pool of available financial and human resources (material work), the development of a value chain for the urban bus market (relational work), and the establishment of a shared code of symbols, practices, and language for the emerging market. In the next section, the focus is to show the process of consolidation of the emerging hybrid market which occurred during the transition between the 1980s and 1990s.

4.2.2 1980s-1990s – From hybrid market emergence to consolidation

While during the first stage of market emergence we saw that prevalence of a cost-efficacy logic, and with slightly lower influence of the aesthetic, humanizing, and ecology logics, in the second stage, located in the transition from the 1980s to the 1990s, the City of Curitiba changed their focus towards promoting a humanizing logic as the hallmark of the city's administration, that is, "*Curitiba proved that it is possible to make a better city, more humane. And now, it intends to prove that it is possible to make a more just city*" (Jaime Lerner, O Estado do Paraná, 1980N234).

Such change of emphasis is evidenced first by Cássio Taniguchi, former IPPUC president and mayor, who argues that in "*Lerner's first administration we had three fundamental transformations in Curitiba – physical, economic, and cultural –, in the second, the emphasis was in social terms. With the ITN reaching the whole city with the flat social fare*" (Cássio Taniguchi, 037D1990). Jaime Lerner's discourse also shows a shift from the cost-efficacy predominance to emphasizing the **humanizing logic**. We find evidence of such shift on the Diário da Tarde newspaper article in which he argues that "*Curitiba kept developing on a social direction what had already conquered on a merely physical direction of implementation: a mass transport system [that is] efficient, safe, and compatible with the income reality of their users. […] We reinstated dignity to collective transport*" (Jaime Lerner, 1981N557).

The main driver of such change in terms of public policy at the City Hall was the implementation of the social fare, the flat fare system that made possible the integration of Curitiba's bus system by means of the Integrated Transport Network (ITN), in which the passengers would be able to reach almost any point of the city paying a single ticket. Such measure was considered a "*pioneer and revolutionary measure that allowed important transformations in the collective transport of Curitiba, and of a broad social reach*" (Gazeta do Povo, 1992N034).

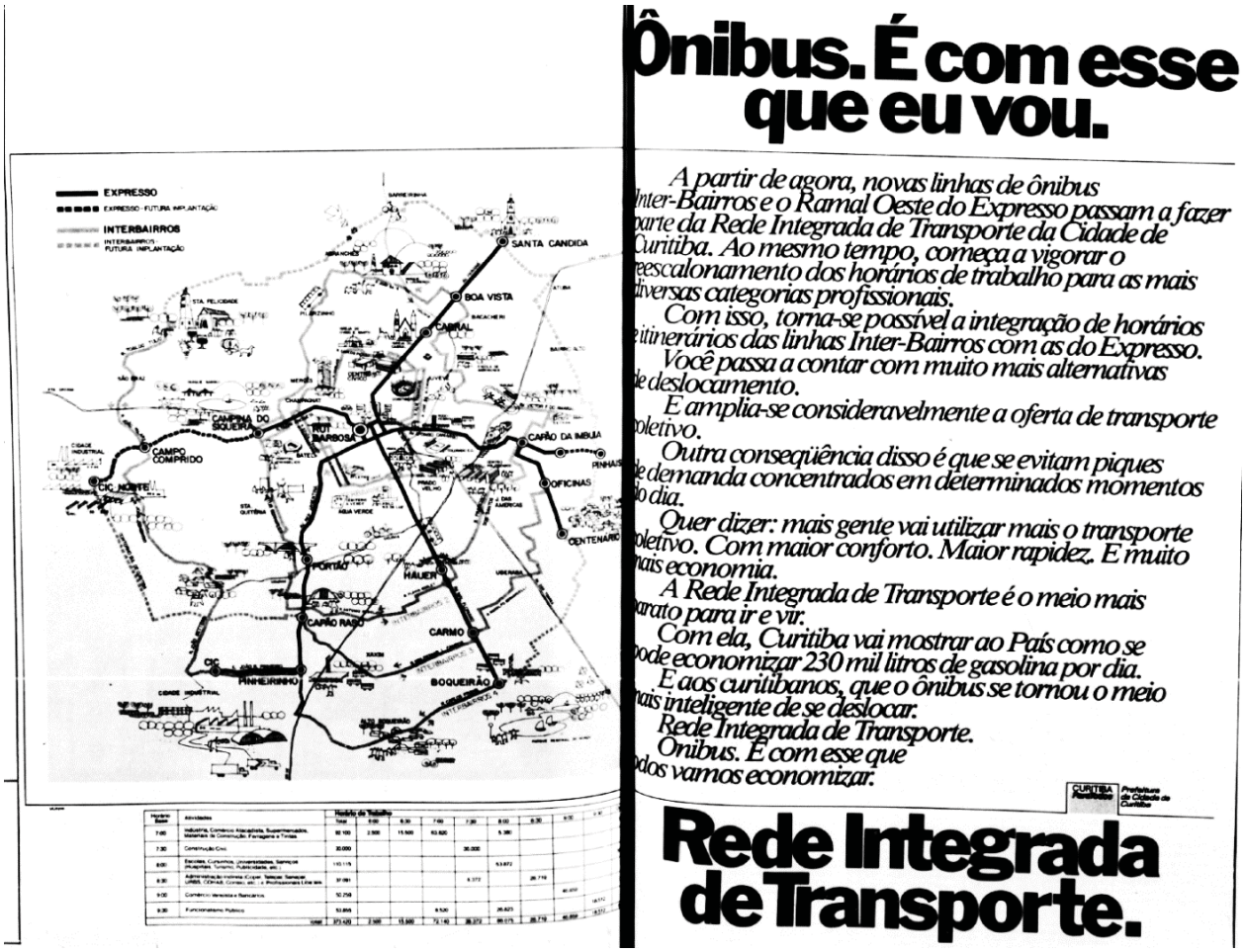
Our data show that the City Hall invested in the **symbolic work** to bring the humanizing logic to prominence, especially by using the word "social" in the releasing of the flat fare system in Curitiba, as the newspaper article published at the Diário do Paraná (1980N233) show: "*At first, the recently released fare was thought only with the name Flat Fare, but, given its characteristics of benefit to low-income populations from the neighborhoods of the periphery, it was included the word 'Social' in its title [name]*" (Diário do Paraná, 1980N233). They add:

> *"[T]his [the social fare] is a manner of increasing the income of the individuals since it's not a City Hall responsibility to increase their salary. He says, however, that [the City Hall] has the obligation to know that it is a partner of a social problem that occurs today which is becoming 'higher every day, with the population getting even poorer. We need to invent solutions, in such a manner that they can face the difficulties that are getting higher"* (Diário do Paraná, 1980N232).

The 1970s Oil crisis got even more severe in the 1980s, especially considering the exponential inflation rates faced by the Brazilian economy. As Interviewee 19 stresses, although the 1980s can be considered a "*lost decade*" (INT19) in terms of technological development of the system (exception made for the implementation of the articulated bus on the exclusive busways), the City of Curitiba took advantage of the crisis to keep expanding to areas such as the West End of the City and to the East End of the city. Thus, despite the prevalence of the humanizing logic during the transition from the hybrid market emergence to hybrid market consolidation, we find evidence showing that the **material and symbolic work** for reinforcing the **cost-efficacy logic** was also influencing the bus market at the time. In Figure 26, we show that official advertising of the City Hall saying that "*[t]he Integrated Transport Network is the cheapest way to come and go. With it, we are going to save 230 thousand liters per day of gasoline. […] Bus. It's with it that we are going to save*" (Diário da Tarde, 1980N554).

Regarding the **ecology logic**, Interviewee 10 argues that it did not represent a strong influence on the planning and management of the bus transport system. However, he also notices that "*in 1986 we had the Secretary of Environment, that was an innovation […]. So, this Secretary is created, and we began to make the municipality's environmental management*" (INT10). This action will reflect in the next decade, of the 1990s, when Curitiba will be recognized as the Ecological Capital of Brazil. In what regards to the **aesthetic logic** that was one of the strongest logic at play in the market emergence period, barely disappears during the market consolidation stage (1980s-1990s).

FIGURE 26 – CITY OF CURITIBA'S OFFICIAL ADVERTISING REINFORCING THE USE OF THE INTEGRATED TRANSPORT NETWORK DURING THE OIL SHORTAGE



SOURCE: Dário da Tarde (1980N554)

If on the one hand, we found that the market emergence stage was characterized by the institutional work for establishing the market infrastructure and

resource allocation (allocation work), on the other hand, we have evidence that the second stage, market consolidation, was characterized by the institutional work for creating the institutional structure of the market, that is of rules, norms, and values (regulation work) and for defining who could participate in the market and should its competitive standards (classification work). In the following sections, we will show how the process of regulation and classification work unfolded on the consolidation stage of bus rapid transit hybrid market.

4.2.2.1 Defining new market regulations and changing the power balance

The urban bus Market, in terms of service providers, was established organized for the first time in Curitiba through mayor Ney Braga's decree in 1955 with the creation of the selective areas. Interviewee 4 asserts that some bus operators are operating "*since the times of the mule carts, and they came evolving. You have the Gulin family, that operated in the North area, the Pellandas that operated in the South of the City, and these [family companies] are practically still there. there was public bidding, but what were their lives about? Collective transport*" (INT4). Moreover, "*up to this point, everything was delivered to the private bus operators, and they used to act the way they wanted*" (Euclides Rovani, 002D2004).

In this regard, with the advent of the social fare and Integrated Transport Network, a whole new set of regulations was necessary, what ended up shifting the **power balance** of Curitiba's bus market by reducing the power of the private companies by the increasing control over their operation by the municipality. Although changing the market regulation structure evolves disputes and struggle, the new model of regulatory framing usually "*arise inside the environment's structure, and sometimes there is that question of 'this is my business', then there is a negotiation process, of collective construction to make the idea viable*" (INT10). Such negotiation process is a key component of the social construction of markets, because of the clearer the rules and norms of market functioning, the better for market actors.

However, the data excerpt extracted from the Interview 7 and reproduced below shows that the representatives from the public actors (City Hall, IPPUC, and URBS after 1986) had a clear understanding that **there were areas in which they**

had to regulate, and there were areas in which the market would be able to regulate itself.

> *"There are areas in which the state needs to be [present], such as regulation, for example, and if you don't have an URBS that can make the inspection and regulation jobs, the market won't do it. At the same time, there is a space where the private initiative is more efficient. […] [T]he important is that you have regulation for this market [bus operation], so it's up to the state to plan and to regulate, and it's up to the private initiative, mostly, to execute and operate. But both must be at the service of the population, and that's the biggest issue in our transport area"* (INT7).

The first effort for changing the market regulation was breaking the selective areas through the implementation of the Interdistrict lines between 1979 and 1980. Euclides Rovani tells that a "*huge fight we had was when we implemented the Interdistrict [lines], for breaking the then existing system of selective areas. The Interdistrict [line] would invade everyone's area and facing the companies [bus operators] was a very serious thing*" (039D1990). Rafael Dely asserts that breaking the bus operator's selective area system "*was a very difficult process for its implementation, but Jaime Lerner's decision prevailed, he punched the table and commanded them to do it*" (006D2016).

This was the first symbolic work to unsettle the previously shared assumption (that came from the era of the creation of selective areas in the urban transport of Curitiba) that the bus operators were the "owners" of the system. Later, in 1985, with the first democratic elections in Brazil after 20 years of a Military Regime, the administration of the new mayor elected, Roberto Requião, "*decides to treat this matter differently. We questioned the relationships between the City Hall and the business sector, and I am not exaggerating, there was maybe certain leniency of the City Hall in this matter*" (INT10). Thus, URBS decided to make a clear statement to the market that from that point on, **the passengers should be considered the owners of the system** and the private bus operators would become simply service providers, as is suggested by Interviewee 10.

> *The relationship was established in a very republican way, of course, because the state, the municipality, preserve their position. 'I am the manager of the system; you are the operator. I give you guarantees under this specific protocol'. The operators are employees of the system. 'You are respected, and you have your issues and you have your progress here too, [but] the passenger is the owner of the service'. I have to work for having the lowest fare possible, or the best offering, or the best conditions, or the best kind of vehicle, the most comfortable [one]"* (INT10).

Under the new regime at the City Hall between 1986 and 1988, **URBS took over the transport management and the public transport became effectively public in terms of supervision, control, and planning** (INT10). The system management (URBS) also developed a coercive system for reinforcing the new regulation, establishing fines for the bus operators that fail to offer the service with the required quality, especially considering their efficacy in terms of bus frequency.

> *"[A]t the beginning of 1987, a new pact was established, a new protocol. It was decided that all the current contracts would be nullified, and we would build, with a broad discussion with workers' union, bus operators' union, URBS' technical staff, Attorney in General of the City, and even a representative from the Audit Office. There would be a discussion about the new system, that is going to correct the anomalies that were being identified"* (INT10).

Still at this decade, influenced by humanizing and ecology logics, new norms and regulations were implemented for guaranteeing that the system would become friendly to the environment and disabled people even before **there was any norms or regulations about it** at higher levels (State or National-wise). After they were implemented in Curitiba, "*people started talking about it, and then it started the creation of norms; there are norms for ramps, norms for elevators, norms for accessing the doors, there are norms for everything. But we were there before the norms"* (INT5).

4.2.2.2 Negotiating the system of operation in the market: remuneration and cost structure

Concomitant with the decision to break the institutionalizes practice of selective areas in the city's public transport system for implementing the Interdistrict lines, the City Hall and IPPUC had another battle set against the private operators of Curitiba's bus system. For taking the next step for establishing the flat fare in the system, it would be necessary to negotiate the operationalization of the remuneration system and the current cost structures (i.e. **material work**), otherwise, it would not work in practice. Thus, implementing the social fare ignited a new series of tension between the public power working for implementing a **humanizing logic** and the private actors working for the maintenance of the **cost-efficacy logic** in the system.

Although, the representative of private bus operators (Diomar Dalledone, then president of the bus operators' union, SETRANSP) used **symbolic work** to show to the citizens their support for the implementation of the social fare by stating that "*[t]he implementation of the payment of a flat fare [in benefit of] the users […] by the social reach it represents, received immediate and integral cooperation from the system's concessionary companies"* (O Estado do Paraná, 1981N238), archival data shows that their support to the humanizing practice was not automatic, as the *"mayor [Jaime Lerner] noticed that the measure resulted in sacrifices from certain areas, but after coping with the resistance from the business owners [bus operators], it was possible to establish the social fare"* (O Estado do Paraná, 1980N234).

The main challenge posed to the City Hall for implementing the new fare system was that those companies operating shorter lines would have a higher revenue, while others would operate in deficit because the fare would not cover the costs of longer lines (that is, they would be the ones to be sacrificed in Lerner's words). Thus, the technical staff from the IPPUC, DSUP – Department of Services of Public Utility (mainly Tancredo Cunha), and from the City Hall developed a system called "**compensation chamber**", in which the companies designated to operate in profitable lines would transfer revenue funds into a bank account at the Bamerindus Bank (1980N234), the balance of the deposits would be used to give financial compensation for those companies operating in deficit.

> *"To solve the problem of the bus companies that are going to have a deficit with the reduction of the fare currently charged […], concessioners of the collective transport are going to create an account of mutual compensation through a financial institution which is going to make daily credits or debts corresponding to each [bus] company's rights […]. There was resistance [though]. The business owner Darci Gulin, from the Glória bus company, admitted yesterday that there was resistance by concessionaires in accepting the social fare, 'because, in reality, every novelty generates resistance, even more in this case with the creation of this transfer fund that is going to generate interdependence among the [bus] companies'. According to [Darci] Gulin, that was exactly what generated the major problem for the concessionaries to understand the social nature of the measure, what took them to two months and a half of exhaustive meetings"* (O Estado do Paraná, 1980N234).

After all the negotiation work, the new agreement made between the City Hall and private bus operators regarding the compensation chamber implementation worked for five years thereafter. However, as we discussed above, with the shift in the power balance occurred with the election of Roberto Requião as a mayor, the new

regulation body of the public transport in Curitiba (URBS), decided that it was necessary to establish a "***new protocol of relations*** *between the municipality and the [bus] operators*" (INT10). The main concern of the regulating bodies of the public transport in Curitiba was that the current operational structure of the system did not pose any risk for the private bus operator, because they charged the fare, provided the service to the passenger, and the revenue would stay integrally with them. However, as the remuneration was according to the number of passengers transported, the bus operators did not provide any regularity in the offer out of the peak hours and were not renewing the fleet according to the norms (INT19).

FIGURE 27 – ADVERTISING OF THE INAUGURATION OF THE FIRST PUBLIC FLEET BUS – THE PEOPLE'S PROPERTY BUS

SOURCE: Correio de Notícias (1987N589)

Thus, in this new protocol of relations mentioned by Interviewee 10, the City of Curitiba established that from 1986 on, the revenue of the system would become public, and it would be invested in the renovation of the fleet through the purchase of new articulated buses by URBS that would be operated by the private bus companies. This new fleet composed by 88 orange articulated buses became known as the "public fleet" or "the people's property" buses were purchased through a bidding process from several chassis and bodywork manufacturers (although Figure 27 shows the joint advertising of Marcopolo, Volvo and the City Hall regarding the delivery of the first bus of the fleet – Correio de Notícias, 1987N589, the fleet was also composed by Scania chassis and CAIO and Ciferal bus bodyworks – 002D2004). As we infer from the excerpt below from Interviewee 10, the public fleet was the means found by the City

Hall administration to make pressure on the private bus operator to raise the quality levels of the transport service.

> *"It was clear for us, that making the [operation of the] system public was not a solution that seemed viable too. The public management was essential, and we had to qualify the management. In this case of the [public] fleet, it was a progress, because if the operator complains… They play games, 'I need money for purchasing [new] buses and I can only if I have fare [increase]', then we are going to put an ending to this games"* (INT10).

When the public revenue system defined that all fare collection made (paid by each passenger of the system) would be reverted to the municipality, the private bus operators started to be remunerated by kilometer of provided service instead of by passenger attended, so they would be forced to provide the service offered regardless of passengers demand (peak and non-peak hours). As the Interviewee 10 notices, "*[t]he issue is guaranteeing the offer. But what is the stimulus? 'I can fine [them]', yes you can fine [them], but fines do not solve the question, the matter is remunerating the service. I can't remunerate for the service that was not provided*" (INT10). We ask, how do that work in practice? The excerpts below extracted from Interview 11 and from IPPUC (036D1989) show that:

> *"First, you have to define how much do the system cost. Then, at the time of the public revenue, as you had to pay by kilometer run, there was a very effective control on the effective cost of one kilometer; how much fuel a bus effectively consumes; by how much it [the fuel] is sold to the operator; invoice control; how long a set of tire lasts. So, everything started to be controlled closely. So, these parameters for costs calculation would be put on the public bidding process for the fare calculation. How much is the cost of a fare unit? It is a bill. It's like in the restaurant, the waiter comes, bring the bill of the dinner you have just been served and you divide by the number of paying customers. In the public transport, It's the same thing, how much do this operation cost with the adequate profit for the company operating it (obviously, because nobody works for free), with the appropriate rentability? How much is it? Then you split the costs among who is paying the bill [that is the passenger]"* (INT11).

> *"Curitiba's bus system is self-sufficient: the fare covers, integrally, the operational costs. The fare calculation is done by URBS (Urbanização de Curitiba S.A.), the municipal company responsible for managing the capital's bus system. The values of fuel consumption, expenses with parts and equipment, depreciation of the running material, among others, are defined according to research conducted by the technical staff of the company that manages the system, which created their own table based upon the conditions of operation of the Curitibano's system. The municipal company controls the number of passengers boarded through sealed turnstiles and the payment to the private companies is made by kilometer"* (IPPUC, 036D1989).

With the increased control on the service providers, the regulation work was reinforced by coercive measures taken by the URBS, such as the application of heavy kilometer-based fines: "*I remember that, in this year, 1986, when the City Hall had the will to make an effective management and control [of the system], 7 thousand fines were issued, a record. Fines by delays, for suppression of trips, and also for problems in the vehicle, operational problems, defective equipment […]*" (INT10). According to Interviewee 19, the clash between the public administration and the private bus providers during this negotiation process "***was a dog fight***" (INT19), but although the ultimate decision was on the hands of the mayor, the private operators understood that the kilometrage-based remuneration would improve their guarantees.

> *"They [the bus operators] had negotiated in very austere conditions here, but they kept complaining that they could have made more money. Of course, they could have made more money, they always can. But this is an essential public service […]. At the time we were in a war, but a respectful war, a verbal war, a clash, but the transformations must happen […]. We had a will of making it, the technical, political and even conditions were favorable at that moment for the implementation of the changes and they had to accept it because the mayor would nullify the existing contract"* (INT10).

> *"I don't say that [the decision-making] was broad, it was monocratic actually, the process was at the mayor's hand. So, for example, the one to drop the hammer was the mayor, but he would not drop the hammer before a long negotiation, discussion. […] But the fact is that the business sector saw that there was an evolution, they had guarantees and they did not suffer from the inflation rates. The inflation hurts and it is heavy"* (INT10).

This fare system was in force for 24 years, but it had also faced severe critics from URBS technical staff because "*you took out the operators' risks in terms of revenue, and you had to control that. And as you would pay by kilometer run, you had to create a very effective control of two things: of what you received, that was the money; and of you what you paid, that was the kilometer*" (INT11). Moreover, Interviewee 11 states the "*with the payment by kilometer run, we realized that the care of the passenger was not their concern. Their business became making kilometrage*", so the City Hall decided that it was the due time to "***pass the risk to the operators*** *so they should actually attract the buyer of their business [i.e. the passenger]*" (INT11).

Finally, our data show that the **regulation work** was important for the structuration of the bus rapid transit market in Curitiba, but there is a sensitive balance to be kept between the needs and the public interest regarding the passengers (users)

and the interests of the service providers (private bus companies), as can be evidenced by Interviewee 4.

> *"URBS is an intermediary [actor] between the user and the business owner. The user wants to pay the lowest fare possible and the business owner don't want to have a financial loss, he wants to be paid for the service [provided], to be remunerated for the service [provided]. So, what's URBS role? Trying to keep this balance, the user pays a fair fare and the business owners are paid a fair price for the service provided. Under these conditions we have a good relationship, there are rules, there are laws, there is a transport regulation, and everything is going to be followed"* (INT4).

4.2.2.3 Changing the current market structure and operation

Besides the market regulation work (that is, creating of changing market's regulatory and institutional infrastructure), another kind of work was being performed by socials actors the emerging hybrid market during the transition to market emergence to market consolidation was the **classification work** (redefining the roles of the market actors and the standards required for being a part of the market). Our data show that although the leadership of the regulating bodies of the transport system (IPPUC and URBS) led to changes in the local market structure and operation, it would not be possible without mobilizing relational resources (**relational work**) to put pressure on the industry to produce urban specific buses at a national level.

As we have shown before, the bus industry in Brazil in general and the urban bus market in specific were dominated by Mercedes-Benz, who adapted truck chassis for being embodied as urban buses. However, as Interviewee 17 states, the industry realized that they **would not be allowed "to use trucks to transport people" in Curitiba anymore** after the city lobbied with the Federal Government to develop a new standard of urban bus[33], the Padron bus, which ended up becoming the norm of the industry and changing how the urban bus market operates in Brazil from that point on,

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[33] The private bus operator refused to maintain regular purchases of the Marcopolo Veneza Expressos with Cummins engines because it was very costly for them (036D1990). They agreed to purchase buses and to operate the Expresso fleet, but "*doing it in the standard of the bodywork industry*", then the "*system preferred to adopt the standardization of the current fleet in Brazil, which did not had vehicles with much comfort and had generic specifications*" (INT10), specifically those with Mercedes-Benz engines on truck chassis (036D1990). This was the main reason why the City Hall invested in relational work for changing the urban bus industry standards, so they could pressure the bus operators to purchase the appropriate urban buses in the next cycle of fleet renewal in Curitiba.

as can be evidenced by Euclides Rovani and Interviewee 10 account of the events (039D1990).

> *"Along with EBTU (Brazilian Company of Urban Transport, linked to the Ministry of Transport), we forced a legislation in the area of vehicles since we did not have power to fight against Mercedes-Benz, [and] we got with the Federal Government to develop a project for the standard urban bus [known as the Padron Project]. Then Volvo came to Brazil and this company produced urban buses. Today, Mercedes, Scania, and Mafersa (beyond Volvo) produce urban buses: lower bodywork, turbocharged [engine], air suspension. The urban transport is evolving a lot and Curitiba has much responsibility for this evolution"* (Euclides Rovani, 039D1990).

> *"In parallel with this period [of market regulation], the GEIPOT [Brazilian Company of Transport Planning] develops the Padron Bus Project, which is important, it's an initiative of the GEIPOT to improve the quality, the comfort level for the user of public transport in Brazil because what has actually been done was embodying truck as buses. That means the floor was more than one meter high, so every passenger should go through a barrier of one meter for reaching the interior space of the bus. So, the people with any kind of special needs, elderly people, or even the children, they could not board the bus, they had to be carried [aboard]"* (INT10).

Moreover, Interviewee 17 asserts that, as Volvo was the newcomer in the Brazilian market in the late 1970s, had decided to install their production plant Curitiba, "*and had an excellent bus in Sweden*", the mayor Jaime Lerner invested again in **relational work** to convince Volvo to get into the bus market in Brazil since originally they came for the heavy-truck market only. Lerner "*was there several times with their directors and saying, 'you have a great system, let's work together, we need adequate buses'. Then they started to make the buses with 100 seats, [with the] transverse engine underneath, [and] it had that free platform above [inside the bus] that was spectacular until the articulated arrived*" (INT17). The Volvo entrance on the bus market with the B58 chassis already 100% according to the Padron standard in 1980 (Diário da Tarde, 1979N548) represented a **material work** that had ignited major changes in the urban bus market.

With the advent of the public fleet, Curitiba changed their position from a technology pusher to a technology taker, returning to the industry the incumbency of offering the best solution available in the market, since this was, at the time, the biggest articulated bus purchase of the world (INT10). Interviewee 10 narrates that during the Roberto Requião administration as a mayor, "*URBS went to the whole industry and requested for the whole industry, '**send us your projects** both of chassis and bodywork'. Then, analyzing what the industry was capable of delivering in terms of the*

best solutions" (INT10), URBS created the bus specifications that should be attended on the public bidding process (a process that is typically highly oriented by the **cost-efficacy logic**).

Since URBS became a direct client of the bus manufacturers (engine, chassis and bodyworks), they decided to implement practices of quality control to assure that the buses of the public fleet would be delivered in accordance to the standards required at the public bidding's specification. However, our data reveal that URBS' technical staff found out that **there were no quality control practices on the bus manufacturing industry**, so they had to make several adjustments on their assembling lines to address the quality requirements posed by the City of Curitiba. The evidence below, a vignette told by Interviewee 10, illustrates the lack of quality concerns of the Brazilian urban bus market in the 1980s.

> *"A detail is that URBS not only had specified the vehicles [of the public bidding], but they also had purchased them, and they supervised the manufacturing [process]. On the chassis manufacturing, there were not many problems, because it was more standardized, however, in the bodywork manufacturing, that was kind of handcrafted, it demanded a… there was no equal bus, there was not a single bus equal to another. The problem is that sometimes it was too different. 'Calm down, this is not what we had in the project'. So, URBS supervised the manufacturing and would only authorize the delivery if it [the bus] attended the specifications. I went to Ciferal's plant with URBS' president, Stênio [Jacob] in 1988. Then, we went there to visit because on the last purchase we had bought from Ciferal because they had won the public bidding [process], but our staff came there before us. We went there to meet the factory, whatever. Then, when we got there, Lélis [Teixeira, Ciferal's director] said this to Stênio [Jacob]:*
> *- 'Your nurses are here already'*
> *- 'What do you mean? Why nurses?'*
> *- '[Because] whenever they find a fail, they make an X with a masking tape'*
> *So, imagine this, buying 50 buses? It wasn't simple, there were problems even with their assembling lines. Then we found out that the private companies [bus operators] did not supervise anything, they rarely would go there and check the [product's] quality, and we, because we, as a public company making the purchase, we had this concern. […] The industry used to invite the business owners [bus operators], 'come here at the factory, let's have a dinner'. Then they had dinner, had a drink, a barbecue, did you get it? That they would do, but quality [control]? 'No, no… later our folks will take a look at it and if there's any issue we will fix it'"* (INT10).

Thus, our data show that Curitiba's revolution on the bus transport system reverberated throughout the urban bus market at a national level, and even at an international level. Given the efforts of social actors like IPPUC, URBS, the City Hall, Marcopolo, and Volvo invested into changing the bus market structure and operation, the Brazilian bus bodywork industry became acknowledged as a premium industry that

produces buses for several other countries around the Globo. Marcopolo, for example, in 1999, stated that "*its consolidation makes Marcopolo, and Brazil, acknowledged today for its products in more than 50 countries*" (081D1999).

4.2.2.4 Defining the competitive standards of the market

During the changes that were happening on the market structure and operation of the bus industry in Brazil and on the development of the bus rapid transit system in Curitiba, Volvo became the frontrunner because they were the first manufacturer commit to developing the urban bus market through producing specific chassis for urban buses, not only embodying their truck chassis. Thus, **Volvo created competitive a barrier and dominated the market for years as technology leaders**, as data from Interviewee 18 shows: "*Volvo, I think that in their first 15, 20 years, were surfing on this wave alone, they have dominated [the market] so much that the fleet of conventional vehicles that had a certain standard, they were all Volvos. Then the others started to run after them to catch up on their technology*" (INT18).

Much of this dominance raised the bar of the competitive standard of the market, and much of this change happened in a context in which "*the industry is interested in selling buses and there's not a single manufacturer, it's not a monopoly, you can talk to Mercedes, Scania, Volvo… [But] Volvo had a special interest by Curitiba's transport [system], they did not have exclusivity, but they were interested*" (INT10). However, according to Carlos Ceneviva, these changes on the national bus market standards that was provoked by Curitiba's transport system went unnoticed by the long-time Brazilian market leader (Mercedes-Benz), since they had initially refused to adapt themselves to compete in this new era that was arising.

> *"[O]ne of them did not get involved until this day: Mercedes-Benz. I have the impression that they think the urban market is still too small [for them]. They prefer to dedicate themselves to the road bus market and to force the utilization of such kind of bus in urban transport. Other companies that had developed urban transport projects in other countries had transported themselves to here [Brazil], like Volvo – that produces urban buses today. Scania is getting into it too and others do not show interest. That's how I interpret this [matter]"* (036D1989).

This lack of interest of Mercedes-Benz in changing their production practices was evidenced again in the late 1980s when the German manufacturer did not show

interest in supplying the articulated buses for Curitiba's Expresso bus system that would be purchased by URBS. As the following excerpt from Interviewee 10 shows, the competition to sell through the public bidding "*could be possible attended by Volvo, Scania, Mercedes or any other [manufacturer] that wanted to* […], *and even though it was reduced to three possible suppliers in Brazil because there was no one from abroad, there was a dispute between Volvo and Scania by the market of Curitiba*". (INT10). Although Scania was also able to get into Curitiba's market of Expresso buses, the vast majority of buses purchased were bought from Volvo, because they were able to provide the best solutions in terms of technology at the time (they were the only manufacturer capable of producing mid-engine buses – INT17) with the best **cost-benefit** for the system.

> *"The solution of the engine, for example. Do you know the difference between a rear, front and mid-engine? On the vehicle, the engine takes up space, and there's the solution of the mid-engine that the engine goes underneath the bus floor, it doesn't take up space, you save plenty of room, which means you have more [passenger] capacity. So, we had a ponderation, and it was good for Volvo because they had the transverse engine and they had an edge on the price mainly because of it. We are talking about a bus corridor which runs sixty buses per hour, carrying ten, twelve thousand passengers, so it makes a difference having more space, less space… every 20 buses [with more capacity] it's one bus less that I need [to transport the same number of people]"* (INT10).

By **setting the standards of which kind of bus would be allowed to run on the Expresso bus system**, which was much higher than the standards accepted by every other Brazilian capital city (Euclides Rovani, 039D1990), only those manufacturers (chassis, engines and bodywork) that met those standards would get into Curitiba's market. However, as the Interviewee 11 addresses, this new level of standards was particularly challenging for the Brazilian bus bodywork market to achieve, but after all, most of the main manufacturers ended up adhering to the new standard that was necessary to attend Curitiba's demand (039D1990).

> *"On the one side, you have the market [actors] that support their products, and on the other side, you have the one who is going to buy this product. So, there were a few complaints about the raise on the requirements for the bus bodywork manufacturers because, for Curitiba, they had not to change their whole assembling lines, but changing few things on their assembling line because the requirements were higher here. 'I don't want this lateral made with formic, I want it with product X. I don't want the floor made with aluminium because it's dangerous, I want it made with carved plates', the carved plates would need more maintenance. We noticed that there was resistance, but they*

> *followed the norms because we could justify the changes [on the production process] and it was either because of comfort or safety"* (INT11).

The material work invested for getting into the Expresso bus system was later converted into **symbolic work** to show the other potential buyers that they were suppliers for the city of Curitiba. For example, CAIO (bus bodywork manufacturer) had put an advertising at the O Estado do Paraná newspaper showing their articulated urban bus built upon a Scania chassis (one of the public fleet orange buses with the inscription "People's Property" on its right-side) and stating their "*pride to participate of the history of the collective transport of Curitiba*" (Figure 28 retrieved from O Estado do Paraná, 1987N206).

FIGURE 28 – CAIO BUS BODYWORK COMPANY REINFORCING THEIR PRESENCE IN CURITIBA'S BUS MARKET

SOURCE: O Estado do Paraná (1987N206)

Moreover, concerning the new set of standards required by Curitiba "actually, this was good for the industry too" (INT10), since they recognized that they needed to step up against their competition to be able to state that they were allowed to operate in Curitiba's Expresso bus system, as the following excerpt from Interview 10 shows: "*I remember that CAIO once said this, 'you know, we actually need to update, we can*

only make iron bodywork, you require aluminium, we don't want to work with aluminium because the pavement in Brazil is really bad, the road system is precarious, but, hey, you got that busways there in Curitiba'" (INT10).

Beyond defining the standards of the bus market in terms of quality of materials (material work) provided by the industry, we also find in our data another **classification** work held by the public power in the 1980s, that was the work towards the introduction of **cleaner buses on Curitiba's bus transport system**. Data from the Interview 19 show that "*from the 1980s until now, there is practically a law that we must have more much cleaner buses on a fuel standpoint and on an operational standpoint, so the environment will not be affected in a large scale*" (INT19).

These efforts happen by the influence of two distinct logics. The first is a **cost-efficacy logic** because Brazil was struggling with the international oil shortage and the Federal Government was creating mechanisms of incentive for the development of technologies for replacing the fossil fuels by non-fossil alternatives, especially the ethanol, through the creation of the PROÁLCOOL program (National Program for the Alcohol) (Diário da Tarde, 1979N545). In this case, producing cleaner buses with engines running with ethanol would be interesting for the transport industry and for the private bus operators, since the ethanol cost a fraction of the oil at the time.

The second logic at play, especially considering Curitiba's bus market, is the **ecology logic** because during the 1980s the city started to implement urban parks all over the city, and the passenger "*would run on urban lungs, and it means that they are urban lungs contoured by the transport system [running] with vehicles that needed to become cleaner*" (INT19). Additionally, Interviewee 1 tells that the look for a cleaner bus system has long been a concern of the City of Curitiba, since "*Curitiba has always been looking for alternatives for replacing the mineral oil with renewable fuels. So, we had a history of programs that have been done in the collective transport seeking renewable sources of fuel. […] Throughout the years, Curitiba has always been ahead*" (INT1)

To become adherent to this environmental concern that was emerging in the managers of the transport system Curitiba, Volvo brought to their factory from Sweden the multi-fuel engines, that could operate with a mixture of 85 to 90% of alcohol and the other 10 to 15% of mineral oil (Diário do Paraná, 1979N541; Diário da Tarde, 1979N545). As Figure 29 shows, the prototype of the model B58 with a multi-fuel engine was incorporated to the Expresso bus fleet for being tested in 1981. However,

as Interviewee 23 mentions, early attempts to introduce buses moved by ethanol were frustrated: "*I remember that we wanted to make a bus moved by alcohol, but they [the manufacturers] said that it wouldn't work because, by the engine size, the alcohol would not provide [the necessary] explosion*" (INT23)

Our data retrieved from Interview 1 also suggest that the attempt to implement ethanol-based buses in the Expresso bus system was not an isolated initiative, since "*throughout the past decades, several projects and programs have been tested*". However, any institutional work of the City of Curitiba towards embedding the bus Market with an ecology logic has been fought by the bus industry in favor of the cost-efficacy logic. As Interviewee 1 tells, "*we tried to give it continuity, but we started, tested, and tested, and then we had the barriers, barriers that were posed by the engine, chassis, and bodywork manufacturers themselves*".

FIGURE 29 – VOLVO B58 BUS WITH FLEX-FUEL ENGINES, TESTED IN THE EXPRESSO BUS SYSTEM OF CURITIBA IN THE EARLY 1980s

SOURCE: Volvo do Brasil (2019)

These barriers started to be broken in the transition from market consolidation to market expansion (1990s-2000s). For example, in 1990 Curitiba introduced turbocharged-engine buses in the system. According to the Correio de Notícias newspaper article, Curitiba was "*the pioneer city in the use of these vehicles for mass*

transport […], [w]ith turbocharged engines [that] reduces pollution in 50%. These same engines, located either in the middle or in the rear of the vehicles, also reduces noise pollution substantially" (Correio de Notícias, 1990N308). From this point on, less-pollutant buses became the new standard vehicle in the operation of urban bus transport not only in Curitiba but national and international-wise as well.

4.2.3 1990s-2000s – Hybrid market expansion and diffusion

As we have discussed previously, the urban bus market passed through a transition from an emerging market (that has arisen due to the strong influence of the aesthetic logic and the cost-efficacy logic) to a consolidated market during the 1980s and 1990s. During this stage, the urban bus transport market was strongly influenced by the humanizing logic in the first half of the 1980s, but this logic ended up fading out with the increase on the economic crisis that has brought, again, the cost-efficacy logic as the center of the discussion. Ecology and aesthetic logics were reduced to a secondary role during the market consolidation stage.

However, on the last stage of emergence of the hybrid market from the urban innovations on Curitiba's Expresso bus system (1990s-2000s), that is the transition from a consolidated market to a market that was ready to expand and become diffused worldwide as the bus rapid transit system (BRT), the bus transport market reached the highest degree of institutional complexity so far. Peripherical logics on the consolidation stage became dominant logics (aesthetic and ecology) along with the cost-efficacy logic, and the humanizing logic was still present, but not with the same prevalence of the early 1980s.

In this section, we show how the process of expansion and diffusion of the hybrid market (with the four institutional logics identified being present) unfolded. Our data reveal that one the market infrastructure has been built (**allocation work**), the rules of the game are set (**regulation work**), and the actors and products allowed to play the game are define (**classification work**), the last kind of institutional work to complete the emergence of the hybrid market was the **evaluation work**, that is, the social actors worked towards changing internal and external market actors preference (how they see the value) of the products, services, and of the participant social actors

of the hybrid market. This new stage starts in the 1990s, when "*Curitiba became news, [started] to be highlighted because of Jaime Lerner and his team*" (INT5).

The first logic that came to prominence in the early 1990s was the **aesthetic logic**, and the main carrier of this logic, the tube stations, were implemented with the combination of **material** and **symbolic work**. For example, evidence shows the material work to bring aesthetic ideas into materiality, as describes the following excerpt written by Alan Cannell, who stated that "*[p]erhaps the most important design element of the Curitiba system is the Tube Station. This was originally sketched in the late 1980s: the objective was to find a design that was functional, 'clean' and unobtrusive in the urban landscape. The tube manages to achieve these objectives through form and the use of transparent reflective materials*" (003D2008). We also find the symbolic work when Rafael Dely uses rhetoric elements to highlight the status of the tube stations as an icon on the city's landscape. He states that in "*1992 the tube stations came up […] [w]ith a bold design, composed by a metallic structure and closed with curbed translucent plaques, it constituted as a new icon on the city's landscape*" (006D2006).

It is important to note that the success of the tube station goes beyond its form and design. As Interviewee 20 argues when talking about the conception of the tube station, "*every element from the architecture must have a function, it's not just beauty. There is not such a thing of seeking beauty, because beauty comes in the function of the accord, of the settlement of a form or a solution*" (INT20). In this regard, when combined with the Speedy bus design, the tube station gained a whole new dimension in term of its functionality, functioning also as a material element of the **cost-efficacy logic**. As data from the Interview 11 show, the project ignited an institutional clash between aesthetic and cost-efficacy logics at the first moment: "*wasn't called the 'Tube Station' project. The project was called 'Prepayment and Level-boarding', for speeding the system. Yep, the goal was to get more speed on the boarding [process] […]*", so the function had been put ahead of the design on his understanding. However, he also notices that at some point, the conflicting logics ended up combined when the tube station was finally implemented.

> *"But then, there was a conflict between the costs, not only the costs of implementing it but the costs of implementation and the costs of maintenance versus the architectonic part [of the project]. It's not an architectonic desire, it's an architectonic proposal. But then there is a time when you must understand that the architectonic proposal is very important too. I remember*

> *when we used to install those little shelters at the bus stops on the streets. The Expresso bus stops were the 'Chinese hat' and later the domus. Then the station tube came, something imposing, beautiful… so you also got to make the city beautiful. 'But it's going to be costly'. Well, we got to sacrifice something, let's go after the money and let's try to keep it […]. Then the managers [of the city] also understood that they have to surrender to the architectonic matter, the matter of the beauty of the city"* (INT11).

To make the tube station work as the hallmark of the "surface subway" (031D1992), Jaime Lerner needed to convince the industry to change their assembling line once again in order to build the material element that was missing on the project: a specific bus that would allow level boarding by stopping on the tube station platforms. Then, as we find on the excerpt below retrieved from the discourse of Interviewee 5, Lerner has resorted on the **relational work** to access his previous ties with Volvo and Marcopolo (established in the 1970s and 1980s) so they could make the Speedy bus viable.

> *"As Jaime [Lerner] had visibility and Volvo was installed here, they went to Volvo for asking about the possibility of making a specific bus, with higher floors and doors on the left side. Can you imagine the nonsense? Up to that point, all buses had stairs and doors on the right side. Then Volvo, something that shocks me because changing the whole assembling line of a company like Volvo, simply believing in the words of the city's mayor? I don't think this could happen nowadays; I can't see a mayor coming to Volvo for asking: 'can you make a bus for me?'"* (INT5).

The second major project of the expansion and diffusion stage was the bi-articulated bus. The bi-articulated bus got into the system with a strong **symbolic work** of the cost-efficacy logic, since it was supposed to be just the intermediate solution before the implementation of the electric modern tramway. During its inauguration in 1992, Jaime Lerner stated that the bi-articulated buses would "*cost three hundred times less per kilometer than the implementation of the subway [would cost], with the same transportation capacity*" (O Estado do Paraná, 1992N389). Moreover, there was also a clear attempt to use a discourse that would be aligned with the **ecology logic**[34]. For example, the newspaper article about the bi-articulated bus published by Jornal do

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[34] The ecology logic reached its peak in terms of influence in the transport system in the 1990s mainly because of the global-level prominence of the environmental issue. Moreover, as the interviewee 17 tells, "*Jaime [Lerner], who is the greatest at marketing, said 'since we are doing it [ecological measures] let's release it, let's make it in a more coordinated way', and so it was, [we] became the Ecological Capital, it was in 1992 […] and we took advantage that the technical part of the Eco 92 Conference was here in Curitiba, and we took advantage of it for making the release [of the campaign*" (INT17).

Estado depicts in the subtitle the bi-articulated as "*The Ecological Bus*", because they would "*result in the reduction of up to 60% in the volume of gas emissions, what makes the Metrobus [one of the many nicknames given to the bi-articulated bus when it was released] an environmental solution*" (Jornal do Estado, 1992N395). This is aligned with our interview data since Interviewee 22 suggests that "*the energy consumption per passenger is the lowest of all transport system [except for the cable car]*" (INT22).

Furthermore, our data show that the bi-articulated was also part of the **material work** to reinforce the **aesthetic logic** that has been re-established during the 1990s. According to Alan Cannel, the approach to public transport in Curitiba has had *"strong influence of architects on overall system design. This also applies to vehicles themselves: the concept of the bi-articulated unit was first suggested by City Hall, and its design incorporated several recommendations made by URBS, such as the height, the style of the front and the internal layout. An overall effect is a unit that not only operates as a Metro but also looks more like a Metro than a bus*" (003D2008).

FIGURE 30 – CITY OF CURITIBA'S OFFICIAL ADVERTISING OF THE URBANIZATION THROUGH THE EMPLOYMENT LINE PROJECT

SOURCE: City of Curitiba (096D1999)

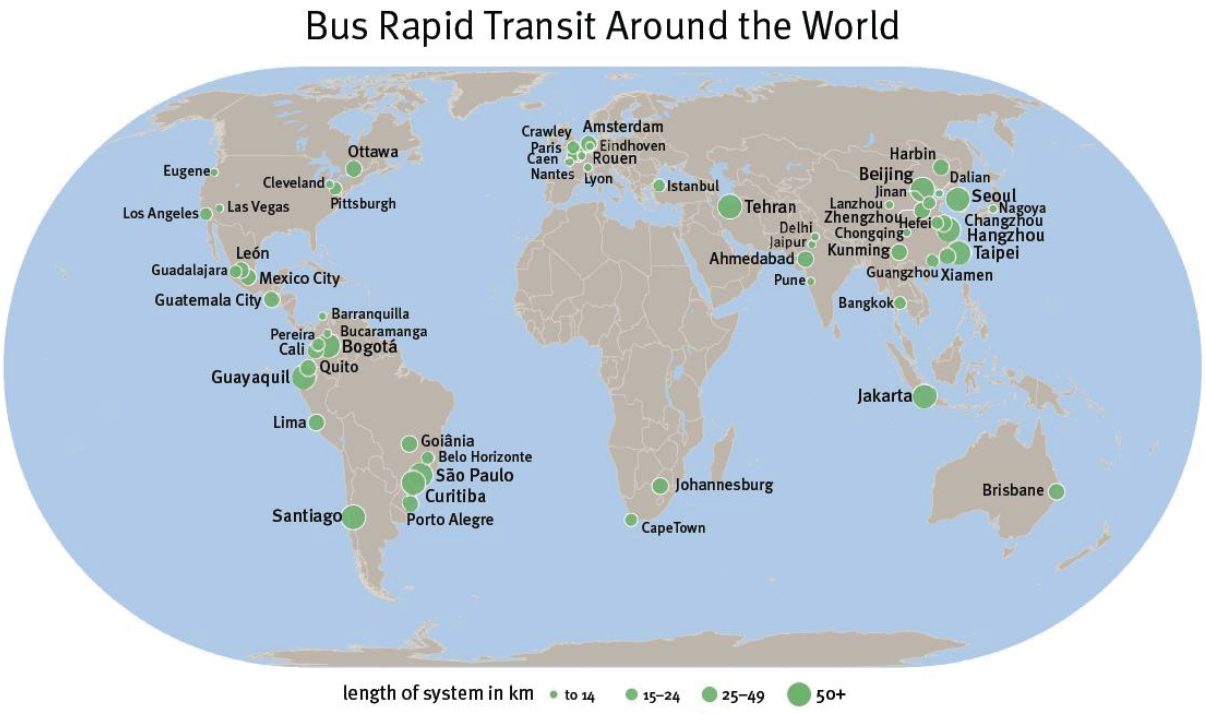
The fourth logic identified during the transition from consolidated hybrid market to a hybrid market in the stage of expansion and diffusion was the **humanizing logic**. Interviewee 9 argues that "*we do not impact only the collective transport, we impact directly the well-being, the health of each citizen that lives in the neighborhoods, because the situation becomes easier for everybody" when you have quality in public transport*" (INT9). The vignette below Interviewee 17 is about the project "Employment Line", which consisted of the implementation of the bus rapid transit in areas of social vulnerability (see Figure 30). The new line, called Circular South, was ought "*to create employment and rent in 15 neighborhoods […], this urban renovation tends to excite the population and to motivate a big economic transformation with the creation of new businesses and generating employment*" (Indústria e Comércio, 1998N465). During this period, Curitiba's City Hall changed its motto from "Curitiba: The Ecological Capital" to "Curitiba: The Social Capital" (096D1999).

> *"Well, sometimes good ideas count on fortune. The [Federal] Government had invited me to visit Japan, and I went there. At the same time, all the staff of the BNDES [National Bank for Economic and Social Development] was in Japan looking for financing partnerships with the JBIC [Japan Bank for International Cooperation]. The Brazilian ambassador said, 'since you are here, let's have dinner at my place', and we got there, and I ended up meeting several BNDES directors. We were chatting, drinking Whisky, and then a director said to me. 'We are the BNDES, and the S is for social, but we don't have any project on social issues. Could you please take a look at it?'. And I replied, 'but I have one ready here'. […] It was such a beautiful project, we put lower sidewalks for people with disabilities, libraries, health units, all integrated. We called that project multi-sectoral. […] It was impressive what this project represented to the BNDES, a successful case study for them until this day, it was fantastic […], we urbanized everything, it became a very beautiful green area and it was all being invaded by slums before"* (INT17).

Finally, during the 2000s, the City of Curitiba released a project aiming at spreading the humanizing logic through **symbolic work** called "Transit-Oriented Inclusion - TOI", which means, according to Interviewee 6, "*increasing, through the transport, the possibility of inclusion of people […], and that's an innovation to me, that is, the concern and the possibility of adapting the whole infrastructure and the equipment itself for allowing more people to use the transport [system]*" (INT6). Moreover, the Interviewee 6 adds that while cities as Rio de Janeiro have reached 30% of accessibility rates in their transport system, Curitiba was, in the 2000s, already with a rate over 90% of accessibility in the bus rapid transit system.

Talking about diffusion, it was in the transition between the 1990s and the 2000s that the full-package of development of the Expresso bus system and the Integrated Network System (with all its four baseline logics embedded in – cost-efficacy, ecology, aesthetics, and humanizing) got encapsulated into an international label, the BRT, Bus Rapid Transit, to be spread to more than 200 cities all over the world (see map on Figure 31, 097D2011). It was a result mostly, of Curitiba showing the BRT system to the world (as we shall discuss in the next sections), for example, by taking the tube stations and the Speedy bus line to New York into full operation and by taking the bi-articulated bus to Istanbul, Turkey, invited by the UN (United Nations), to showcase its operation at the Habitat II Conference (Second United Nations Conference on Human Settlements) in 1996.

FIGURE 31 – MAP OF BRT SYSTEMS AROUND THE WORLD DURING THE DIFFUSION WAVE OF THE 2000s



SOURCE: ITDP (097D2011)

The first wave of diffusion was to fellow developing countries. The first BRT implemented in a foreign country was in Quito, Ecuador, in 1994, followed by the biggest BRT project of the world (in terms of capacity, transporting 42 thousand passengers per hour) implemented in Bogotá, Colombia (054D2009). The second

wage of diffusion, perhaps the most relevant one, is the implementation of the BRT as a solution for developed countries. In the United States, for example, has been promoting the implementation of BRT as an alternative solution to costlier rail-based alternatives (097D2011). As the United States General Accounting Office (US GAO) reports, in "*1999, the FTA [Federal Transit Administration] initiated a demonstration program to generate familiarity and interest in Bus Rapid Transit". The goal of the program was to promote improved bus service similar to model systems in Curitiba, Brazil; Adelaide, Australia; and Ottawa, Canada*" (098D2001)[35].

TABLE 8 – THE DIFFUSION OF CURITIBA'S SYSTEM AS THE IDEAL BUS RAPID TRANSIT FEATURES

Feature	**Effect**	**In Curitiba**
Traffic signal priority	Buses receiving an early or extended green light at intersections reduce travel time.	CTA (Central of Traffic in Area) was implemented in 1977, the SEMAT (Actuated Signals) in the 1980s.
Boarding and fare collection improvements	Convenient and rapid fare collection through prepaid or electronic passes and low-floor and/or wide-door boarding results in timesaving.	Automatic ticketing and prepayment implemented in 1979 in the Boqueirão Expresso line.
Limited stops	Increasing distances between stations and shelters improve operating speeds.	The Speedy bus lines, which started its operation in 1991.
Improved stations and shelters	Bus terminals and unique stations or shelters differentiate Bus Rapid Transit service from standard bus service.	Unique bus stations and shelters at bus terminals have been implemented since 1974.
Intelligent Transportation System technologies	Advanced technology can maintain more consistent distances between buses and inform passengers when the next bus is arriving.	This system is still under implementation in Curitiba.
Cleaner and quieter vehicles	Improved diesel buses and buses using alternative fuels are cleaner than traditional diesel buses.	Turbocharged-engine buses started running in 1990. Ethanol and biofuel run buses have been used in Curitiba.
Exclusive lanes	Traffic lanes reserved for the exclusive use of buses help buses pass congested traffic.	Exclusive bus lanes were implemented in 1972 through the trinary road system.

SOURCE: Adapted from the US General Accounting Office (097D2011)

[35] These visits were documented by Curitiba's local media. For example, the Jornal do Estado outlet highlights that "the mission of the American government, in Curitiba, signed a cooperation agreement" (1999N168). Gazeta do Povo (1999N450) and Folha do Paraná (1999N283) had also published articles about the visit of the FTA representatives.

As a result of the FTA visits to Curitiba, the GAO report defined what should be the features that would be included in the BRT projects to be implemented in the United States thereafter. These features, most of them inspired in Curitiba Expresso bus system (see Table 8), became institutionalized as the BRT system model adopted by transit authorities all over the world.

In the next sections, we present the results concerning the evaluation work to change audience's perception regarding the Expresso bus system (now BRT) internally (internal audience, including citizens, politicians, local media, etc.) and externally (banks, agencies, other cities, manufacturers, etc.).

4.2.3.1 Convincing the audience players to buy-in to the project

The process of selling the idea of a bus-based system instead of the more popular rail-based systems (subways, light-rail vehicles, or tramways) to the internal audience started in the 1970s, but it was finally successful in the market expansion and diffusion stage, that is, when Curitiba was acclaimed by external actors by the development and institutionalization of the bus rapid transit system as one of the best and innovative transport solutions (054D2009). Moreover, the results of the implementation of the BRT in terms of social and economic development – the transit-oriented development (TOD) (097D2011; 098D2001), has actually taken a couple of decades to become tangible.

In this regard, the **symbolic work** was essential for convincing the *Curitibanos* that the Expresso bus system was the best solution for the city (and to resist several attempts to replace It by alternative transport models[36]). As Interviewee 19 argues, "*in general, today, you got speed, you got urban rhythm, and you got the necessity of attending [the citizens] with a clean, fast, and reliable transport, that's number one [priority] and the communication [sector] must show it*" (INT19).

Thus, the city had to effectively communicate to the citizens the advantages of the BRT system, "*that, when it's well managed, allows a higher sense of security, and the travel and dwell times seems to be lower in the function of this accessibility [of the*

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[36] These attempts include the implementation of tramways (086D1979; 087D1979; 89D1981; 090D1981; 071D1991), trolleybus (89D1981; 090D1981; 084D1984), subways (1998N140; 2000N224; 2001N254; 2002N008; 2016N050), and monorail (INT21).

tube stations]" (INT22). This work was not easy because, before the implementation of the Expresso bus system, the buses were doomed to be considered a slow, dirty, and unreliable transport system. As interviewee 19 states, "*we had to change and to **teach the Curitibanos**. When you rip the city on the 1960s to the 1970s, you start creating that thing of, 'what do you want'? **Speed, regularity, comfort and the passenger's trust**, so he can actually use the system when he wants to, and not that thing of 'I was told [the bus] would come at 5 o'clock, but it's not here*" (INT19).

Moreover, as our data show, the City Hall, IPPUC, and URBS needed to use symbolic work to continuously **show the audience that the ultimate goal of the transport system was to meet their needs**. The discourse of Interviewee 15 supports such an argument when it states that "*our goal is serving the population, to provide them with better things, that is dynamic. Actually, the populations' needs are dynamic. Once you attend one [need], others are going to arise*" (INT15). Moreover, the work to convince the population that the innovations being implemented in Curitiba was for the collective well-being had to be extended to the business community, which were essential for the implementation of such innovations. The vignette below, told by Interviewee 23, reflects the symbolic work to enact the **aesthetic logic** for convincing a shop owner of the downtown area that installing a tube station in front of his shop would be a good deal for him.

> *"The tube station, I remember until this day of the Tiradentes Square station, that is [installed] upon the sidewalks. Then, Ceneviva, that was the president of URBS at the time, and I was at IPPUC, he said, 'you go there and talk to that Turkish[37], because we have to put the tube station there, so make up his mind because he does not want to allow us to put it there'. So, I went there, and we had to talk to that folk. And I said, 'Look, Mr. so-and-so, this is the deal, this station here, it is the most beautiful thing you are going to have here, a tube station is an ornament, it's going to increase the value of your shop, the whole world is copying this thing and so'… I sweet-talked him and then he allowed [to put the tube stations in front of his shop]"* (INT23).

The series of changes carried out in Curitiba through the development of the bus rapid transit system ended up changing the perception the people from Curitiba had from themselves and from their city. As Interviewee 15 stresses, with the BRT "*we are making our city cleaner, talking about air quality, and I think beyond that, I think*

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[37] Many shop owners in downtown Curitiba came from Arabic countries escaping from wars. Most of them are originally from Lebanon and Syria, but as the they got into Brazil with Turkish passports, they ended up being known (erroneously but it is culturally spread) as the "Turkish".

about the aesthetic of the city, about making the city more beautiful. I am Curitibano and I am proud of that and I think my fellow Curitibanos are also proud of the city". This excerpt and the ones reproduced below show that the BRT (along with other urban public policies such as the implementation of the urban parks) **made the *Curitibanos* feel pride for being from Curitiba**, what is essential for a hybrid market that has its ultimate customers on the city's citizens.

> *"We have made Curitiba as it is now. Curitiba… at first, the Curitibano was ashamed for being Curitiba. He[she] used to Rio [de Janeiro] and people would ask, 'where are you from?'. 'I'm from Curitiba'. What a pity, you are from Curitiba'. It was shameful being Curitibano. Today, after [the urban transformation that has been carried out], 'Oh, you are from Curitiba, that amazing city"* (INT20).

> *"I used to say, 'it doesn't matter, what Jaime did was to give the Curitibanos pride of having a city like it is [now]'. People would travel around Brazil before the 1970s and they had a certain fear to say they were from Curitiba; it was almost like saying 'I am from [a name of a poorer Brazilian State]'. Then Jaime [Lerner] gave to the Curitibanos the pride to say, 'I am from Curitiba', and today when you say this, people react with enthusiasm: '…Ow, Curitiba is the best city of Brazil…'"* (Karlos Rischbieter, 039D1990).

4.2.3.2 Selling the bus rapid transit model to external audiences

If convincing the internal audience to buy-in to the bus rapid transit development project was essential so the hybrid market could become institutionalized locally, the second part of the **evaluation work** was spreading the model so the market actors could expand their domains to other cities in the same context of Curitiba (cities from development countries) or even translating the model to markets in which the context differ (cities from developed countries) from the city where the innovations were developed and implemented first.

Our data show that the first change that indicated the expansion and diffusion of the Curitiba's BRT system was that **Curitiba became a model of mass transport**, what resulted in the fact that the city **attracts novelty because operating in Curitiba became marketing for manufacturers**. What was before a one-way relationship (Curitiba pushing the manufacturers to develop buses for urban transport) became a two-way relationship, in which now the manufacturers come to Curitiba willing to use it as a test-market of their products, attesting its quality by operating in Curitiba's BRT, as Interviewee 1 describes.

> *"We look for novelty, we go after it. We are always calling upon the manufacturers to ask what novelty they may possibly have. So, it is easy because we try to bring to Curitiba such development, being the pioneer in tests, but also because Curitiba's collective transport attracts all these novelties, so they come here for us to check and we help them to promote [their products]. Wanting or not, putting a vehicle [to operate] in Curitiba is marketing for them [the private companies]"* (INT1).

Developing the BRT features that ended up being the hallmark of the market expansion and diffusion required much **relational work** efforts, because, as Interviewee 1 describes, it represented a challenge for all actors involved, since the City Hall, the private bus operators (that would have to invest on a more expensive fleet), the engines and chassis manufacturers (mainly Volvo), and the bodywork manufacturers, had never dealt with such a complex operation before (level boarding with platforms and ramps with the Speedy bus line and the high-capacity buses with the biarticulated bus). However, they decided to invest because they had been closely related to the earlier stages of development of the system in the 1970s and 1980s.

> *"The [private bus] operators had to invest in the fleet, and they trust these guys. 'Look, you have to purchase a bi-articulated bus'. 'Let's buy a bi-articulated bus then'. There was trust because everything that has been done here so far has worked out well, it is working. During the period we had the level boarding, with the Speedy bus line. After that, we had the bi-articulated bus. […] It was a challenge for Curitiba, and it was a challenge for Volvo, the manufacturer, to accept making it too, for the bodywork manufacturer to accept it. It was challenging. But these people knew what had been done in Curitiba throughout the years and they accepted the deal, they ended up putting this structure together"* (INT1).

But why would a manufacturer like Volvo invest in something that has never been done before? The data reveal that the **manufacturers were interested to develop the system so they could sell it all over the world**. As Interviewee 23 states, "*was Volvo benefited, and that's why I guess they helped us on the evolution of this thing, [they were] already aiming at this worldwide projection with these things that got invented here with them. We have forced them to deal with new things on a process that we local"*. This assertion is complemented by the one from Interview 7, which argues that "*Volvo is the [BRT] biggest poster-boy and always want Curitiba at the frontier of innovation, not only because it [Volvo] lives here too, but because they sell Curitiba and the BRT innovations, they are selling as a solution it all over Latin America*" (INT7).

One might wonder if this process was unilateral, but it was not. According to Interviewee 23, the process of diffusion of the BRT was a partnership between the City Hall and the manufacturers (especially Volvo for being located in Curitiba). The Interviewee mentions that "*it was all on the scheme of promoting Curitiba, and even of the city management wanting to help and to show up to the world, that it [BRT] was invented here, you know? And it was, actually, all along those lines, because we knew the [Volvo] directors very well, […], it was all on the idea of the evolution of the factory itself of these things [that are] from here*" (INT23). Moreover, as we find on ITDP's report (097D2011), since the BRT is a solution found on a developing country using an already tarnished transport modal, it finds some resistance (and even prejudice) in more developed countries. Thus, the relational work for partnering with a company like Volvo was essential for the **evaluation work** resulting successfully.

Volvo, in turn, knew how to use their presence in Curitiba in its own favor. For example, they use the **symbolic work** to reinforce an **ecology logic** by stating that, as their engines are made in Curitiba and they operate in Curitiba, they are environmental-friendly. We find evidence of such work on the discourse of Oswaldo Schmitt, the Director of the Volvo Latin America Bus Division when he states that Volvo's *"modern engines do not pollute, they are ecologically correct, obey to international norms of emission, being adequate for the requirements of Curitiba, that is the capital of environmental preservation*" (002D2004). Likewise, Volvo's hotsite for selling the BRT model brand globally[38] shows the influence of the four baseline logics found here (cost-efficacy, aesthetic, ecology and humanizing).

Besides the manufacturers, **a consultancy market that was originated from Curitiba's BRT development was also instrumental** in the evaluation work through expansion and diffusion of the BRT hybrid market. The success of the Curitiba's BRT attracted the attention even of intergovernmental bodies, such as the World Bank. Interviewee 23 tells that "*I have travelled around a lot. After all this story [of BRT development] I have been a consultant for the World Bank, I went to Indonesia, Singapore, Philippines, a lot of places*". The excerpts reproduced below (Interview 6 and Interview 18) provide additional evidence of the role of consultancy in the expansion and diffusion stage of the BRT as a hybrid market.

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[38] See more on Volvo's website at <https://www.volvobuses.com/en-en/our-offering/bus-rapid-transit.html>

> *"One of the main markets that have arisen from all these innovations, I have no doubts about it, was the consultancy market. Several consulting firms have been developed upon the Curitiba's [BRT] model. […] We had there at URBS several, and it was not a few, no, dozens of visits, we still have, that come to know that Curitiba's transport model. So, this consultancy market was made viable by the innovations of Curitiba that* ***took the work by storm****, and one of the icons of this success is the Jaime Lerner Institute itself because Jaime's office sells consultancy projects all over the world"* (INT6).

> *I have a market today that is the market of the private companies, they are Volvo, Marcopolo, Mercedes-Benz, and these folks want to sell their vehicles and they are promoting the BRT around the world. But they don't have the expertise in making projects. So today the majority of these projects we have here, we work with the large companies because they call upon us to develop the projects so they can sell their brands, to sell their vehicles and everything else. […] The companies have found this niche, that is the public transport projects, and are always calling the consultancy firms to develop the projects"* (INT18).

The strength of the BRT system developed in Curitiba is that "*it is adaptable to any city of the world. Just have an urbanist planning and that this planning thinks of an integrated way every problem of the city. In other words, the [bus] system needs to be coherent with the city's development plan*" (Carlos Ceneviva, 036D1989). And it is such strength that attracted other cities to come and see what a BRT is all about. In this regard, the hybrid market actors of Curitiba (public and private) **are always in contact with other cities and countries to showcase Curitiba's transport system** (i.e. exercising relational work). For example, Interviewee 4 argues that Curitiba's technical staff "*has always been part of thematic chambers in Brasilia, they join every meet possible, so you can get in touch with other cities, other countries*" (INT4). The effectiveness of such measure for the hybrid market expansion can be inferred from the story told by Interviewee 7, in which "*I remember having hosted the folks from Colombia that were interested in buying, and they ended up buying 200 buses there [at Volvo] later. I mean, the 'showcase effect' of Curitiba is fantastic*" (INT7).

Thus, our results suggest that effective expansion and diffusion of the BRT as a hybrid market occurred mainly because "*Curitiba has that feature of being a showcase of innovation and that draws the attention of the whole world*" (INT6). Finally, this study shows that the BRT market hybridization was possible because it **broke the paradigms in the mass transport market, it is a radical innovation because it didn't follow any preceding paradigm**.

> *"It is, in fact, interesting in a sense of system planning. But if you come back in Curitiba's history, in the BRT history itself, I would consider it more like a radical innovation because it is not incremental in the sense of maintaining the same paradigm, of keeping the same path. It breaks with the previous paradigm, that is traditional buses, and placing the bus in the busways represents a new way of thinking that, somehow, has an idea similar to the surface subway, what made this Jaime [Lerner's] project so acclaimed all over the world. […] More than 150 cities have implemented this BRT project worldwide, let's say that it has spillovers in several areas of collective transport and, for medium-sized cities, it is a solution that seems to be way cheaper than the solutions found by other cities. Thus, I would say that the biggest question that Jaime [Lerner's] group, the IPPUC's group has found was breaking the traditional transport paradigm with these axes with busways segregation, fewer stops, and giving speed to the mass transport"* (INT7).

For closing the results chapter, this quotation extracted from Interviewee 7 and reproduced above illustrates in a very accurate manner what the development of the Bus Rapid Transit system in Curitiba represented by the whole bus industry even at a global level, especially in terms of using the organizational and interorganizational relationships (**relational work**), changing the physical structure of cities and its equipment (**material work**), and using the discourse and language (**symbolic work**) reducing the costs of public transport (**cost-efficacy** logic), mitigating the impact caused to the environment in terms of polluting gases emission (**ecology** logic), bringing development to impoverished areas and taking social justice for the citizens of modern cities (**humanizing** logic), and making all these things through an intelligent design that can turn the public transport an harmonious part of the modern urban landscape (**aesthetic** logic).

5 DISCUSSION

At the beginning of this doctoral dissertation, we state that **the core of our thesis** is that the institutional work of market participants to socially define (a) the rules and norms underlying the economic and social transactions; (b) the infrastructure and resource allocation necessary for the functioning of the market; (c) the status and the roles played by each actor; and, (d) the perception of value of the goods and services that are going to be produced and traded in the marketplace, result in the negotiation of shared understanding making possible the governance and functioning of the market. By accommodating the multiple (cohabiting and conflicting) institutional logics underlying market transactions, the phenomenon of hybridization of markets may coalesce.

Our results allow us to defend such thesis because we find that, in our empirical setting (bus rapid transit market emergence), the institutional complexity that were inherent to the city's urban planning development and the institutional work of social actors to accommodate and reinforce the multiple adjacent institutional logics we identify in this study (that is, cost-efficacy, ecology, aesthetic, and humanizing) resulted in the emergence of a market that suffers influence of at least three other logics beyond a market-oriented one. We also posit that there was a gap in the institutional theory and sociology of markets regarding the emergence and/or change of hybrid markets. We ask, how does the process of emergence of the hybrid market unfold? Our analysis of the implementation of the bus rapid transit system in Curitiba allow us to answer this question and to elaborate and formalize the **emerging process theory of hybrid market emergence** discussed below.

5.1 A PROCESS THEORIZING OF HYBRID MARKET EMERGENCE

For understanding the process of hybrid market emergence, first, we had to understand which were the conditions of the institutional context before the emergence itself. As previous theory asserts, the emergence of the hybrid market occurs because there is a certain void in the market institutional infrastructure (MAIR; MARTÍ; VENTRESCA, 2012). Our empirical case shows that the condition found by social actors during the pre-market emergence period (from the 1960s-1970s) was exactly

the one of a lack of institutional and technical market infrastructure (HININGS; LOGUE; ZIETSMA, 2017; THOMPSON, 2003), because the bus-based mass transport was non-existent, and the traditional bus market was unorganized and underregulated

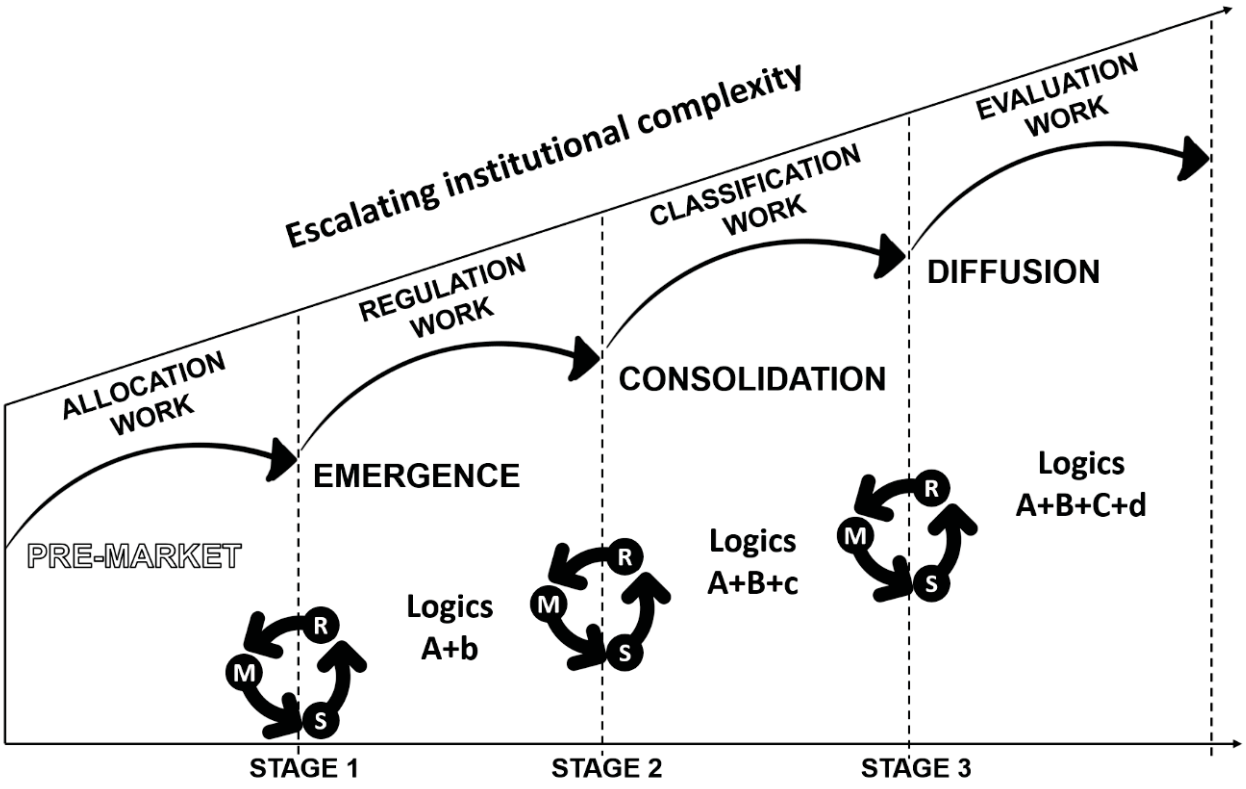
Our results are in line with Hampel, Lawrence and Tracey (2017) when they argue that effective institutional work requires working on the material, relational and symbolic aspects of the market. However, we add to their conclusions by finding that relational, symbolic and material work are indeed mutually influencing and reinforcing each other (HININGS; LOGUE; ZIETSMA, 2017) and are essential for completing institutional work endeavors, but they vary according to the logics influencing practices and ends the actors aim to achieve through institutional work. In other words, we find that transitioning from a chaotic scenario presented in the pre-market stage to the effective emergence of an organized hybrid market, to a completely functioning hybrid market that was ready to expand and diffuse in the latter end of our analysis, social actors had to invest in different kinds material, relational and symbolic work in each and every stage to create or change market's allocation, regulation, classification and evaluation according to the prevalent logics at play in each given period of time.

Furthermore, our data suggest that the first effort required from the actors marshaling the emergence of the hybrid market from the pre-market stage is to build the material conditions for the market operation in terms of market infrastructure and allocation of resources, the **allocation work**. After the material infrastructure of the hybrid market is established, we find that for consolidating the emerging hybrid market, the institutional work for negotiating the hybrid market's rules and norms, as well as defining its power structure are needed, that is, the **regulation work**. Once rules and norms are set, a consolidated hybrid market also shows well-defined competitive standards and barriers, so only actors aligned with the logics behind the emerging hybrid market may be allowed to effectively operate on it, what we call the **classification work**. Finally, we show that the last stage of hybrid market emergence is the expansion and diffusion, that is when those actors working for market emergence put their efforts for changing the audience (internal and external) perception of value regarding the products and services provided by the hybrid market actors, the **evaluation work**.

Regarding the institutional complexity argument, we find that the number of multiple logics influencing the bus rapid transit market has grown as the hybrid market evolved through the stages of development, that is, we argue that market hybridizing

involves the process of **escalating institutional complexity** throughout the time. Our findings show that in the first stage, institutional work (symbolic, material and relational) was heavily based upon the prevailing logic, cost-efficacy (which is the closest to a pure market logic), but also was supported by an adjacent logic at the time, the aesthetic logic (A+b). When the hybrid market was passing from emergent to consolidated, it was able to accommodate two prevailing logics (humanizing and cost-efficacy), a third adjacent logic that was emerging at that stage, the ecology logic (A+B+c). When the marked became consolidated and went through a process of expansion and diffusion, we find three logics heavily influencing the hybrid market (aesthetic, ecology, and cost-efficacy logics), and a fourth logic, humanizing logic, influencing it at a lower degree (A+B+C+d). After presenting the arguments above, we present our **process theorizing of hybrid market emergence** in Figure 32.

FIGURE 32 – PROCESS THEORIZING OF HYBRID MARKET EMERGENCE



SOURCE: The authors (2020)
NOTE A: R = Relational Work, M = Material Work, and S = Symbolic Work
NOTE B: Logics represented by uppercase letters are predominant while logics represented by lowercase letters are latent

Our process theorizing advances extant knowledge about markets on several fronts. While previous studies on institutional complexity have focused on organizational responses multiple (conflicting or not) coexisting logics (RAAIJMAKERS et al., 2015; VORONOV; DECLERCQ; HININGS, 2013), we show how market actors work for the social construction of hybrid market, enacting and reinforcing the logics as they were growing in influence on the market. For example, our data show that when the City Hall argued that the bus rapid transit (Expresso bus system at the time) was an effective way to reduce air pollution through the reduction of the use of fossil fuels by individual transport holders, Volvo was instrumental for embedding the BRT market with an ecology logic by championing the development of cleaner buses (ethanol-run engines) even when there was only rudimentary environmental legislation in Brazil (in the 1980s). In this concern, we add to the sociology of markets literature (BECKERT, 2009b; FLIGSTEIN, 2013) by showing empirically that adhering to the hybrid market in its inception ended up "shaking the competitive balance" of the traditional bus market as well, since by achieving a first-mover advantage in the BRT market as an institutional innovator, Volvo forced former incumbents (i.e. Mercedes-Benz and Scania) to follow their lead in the attempt to regain competitive advantage (FLIGSTEIN, 2013).

Moreover, our results are congruent with previous studies indicating that the emergence of a hybrid market presupposes the achievement of shared understandings about the multiple logics that are governing market practices (FAN; ZIETSMA, 2017; YORK; HARGRAVE; PACHECO, 2016). However, we go further by showing that the creation of shared understandings and common language and practices in institutional complex markets is preceded by extensive "symbolic, relational, and material battles". For example, we show that the dominance of the humanizing logic in the market's discourse during the implementation of the "social fare" in Curitiba occurred after long negotiation work (HELFEN; SYDOW, 2013; LOK; DE ROND, 2013) with private bus operators that aimed at maintaining the prevalence of the market-based logic (the cost-efficacy logic) established during the market emergence stage.

Our study of hybrid market emergence also resonates Goodrick and Reay's (2011) work about "constellation of logics", since we find the four institutional logics influencing the hybrid market had different degrees of influence depending on the market stage of development. However, we add to the institutional literature by showing that the hybrid market "grows stronger" before supporting the full set of

influencing institutional logic (the escalating argument). Thus, although we agree that market hybridization integrates the goals associated with distinct institutional logics (YORK; HARGRAVE; PACHECO, 2016), this goal integration occurs gradually, that is, integrating a rich variety of distinct goals (e.g. profit, operational efficacy, social justice, reduction of environmental impact, beauty in the urban landscape) might happen occasionally, but it is more likely to take place in hybrid markets in more advanced stages of maturity.

Finally, we contend that when markets expand and diffuse after reaching the peak of its hybrid form, it is likely carrying the same logics that were embedded in through institutional work of actors from the original context to new exogenous environments (that is, contexts that are distinct of the one in which the hybrid market have emerged). In the bus rapid transit case, we find that cost-efficacy, humanizing, aesthetic, and ecology logics are embedded in the discourse of actors championing for the implementation of the BRT in their cities or countries (e.g. the FTA and ITDP efforts to “sell” the BRT model in the US). In this regard, we state that although places matter for institutional work (LAWRENCE; DOVER, 2015; ZILBER, 2018) during hybrid market emergence stage, it is the capacity to become “translatable” to other contexts that make it appealing during the market expansion and diffusion stage. This finding regarding hybrid markets is relevant for expanding our understanding of institutional translation processes, which is still a nascent and understudied issue on organizational theory field (TRACEY; DALPIAZ; PHILLIPS, 2018).

In the following sections, we discuss the four kinds of institutional work we found to be determinant to the process of emergence of hybrid markets, that is, allocation work, regulation work, classification work, and evaluation work.

5.1.1 Allocation work

Allocation work is the institutional work for building market infrastructure and marshalling the resource allocation from the market and non-market actors aiming at the creation, emergence or change of hybrid markets. As we mentioned above, the City Hall and IPPUC actors “did all of this because everything was still to be done” (Interview 20), that is, they had to start the institutional work project from building the market infrastructure up, especially considering the need to have resources invested

on the market development. As we infer from Lee, Struben and Bingham (2018), with the material market infrastructure in place, and with financial resources being invested in the bus rapid transit market, private market actors became confident about the stability of the emerging hybrid market and the possibility to make a profit out of it. Our study is aligned with McKague, Zietsma and Oliver (2015) in terms of suggesting that building trustful relationships proved to be essential during allocation work for developing the value chain of the emerging hybrid market. As there were no available equipment and suppliers, the City Hall had to use symbolic and relational work to bring actors operating in the traditional market into the emerging market, since they had no guarantee that the market creation endeavor would be successful nor had the necessary assembling line in place for attending IPPUC's project.

However, as our data suggest, part of this trust-building process was based on market actors' belief that the actors championing for the market emergence knew what they were doing. However, we actually find that their belief was not accurate at first since many of team members had never learned anything about transport before. Thus, they had to expand their domains (SUDDABY; SAXTON; GUNZ, 2015) to adjacent areas such as mechanical engineering to be able to "speak the same language" of market actors. We extend current efforts for understanding the role of learning on institutional work (BETTINI; BROWN; DE HAAN, 2015; MCKAGUE; ZIETSMA; OLIVER, 2015) by showing that learning the symbolic (codes of language, practices, symbols) and material (knowledge about engine, chassis, fuel, layout) aspects of the market was essential for the institutional work project to become successful.

Although we find existing theorizing on the role of leadership on institutional work and institutional complexity or pluralism at organizational (KRAATZ, 2009) and market levels (MCKAGUE; ZIETSMA; OLIVER, 2015), these aspects of institutional work still stand undertheorized in existing research to date. Thus, our findings are helpful because they reveal that building capable multidisciplinary teams is essential for hybrid market emergence and consolidation. In our empirical case, the hybrid market benefited from having capable institutional agents to deal with issues of camps that are carriers of distinctive institutional logics (economics, architecture, and engineering camps, which were carriers of and cost-efficacy and aesthetic logic in our case study), easing the conciliation of the diverging goals inherent to emerging hybrid markets.

Likewise, we find that strong leadership is another factor that plays a key role during the processes of hybrid market emergence. In our case of the BRT hybrid market emergence, we find similar results as of Glynn and Navis' (2010) on their research about the emergence of the Satellite Radio market, that is, under "conditions of heightened uncertainty and ambiguity that characterizes [market] emergence […] leadership was lending credibility to the nascent market" (GLYNN; NAVIS, 2010, p. 282). Additionally, consonant to their study, we also find that the institutional leadership was extended from the IPPUC and the City Hall to the emerging hybrid market, especially concerning the character of the former mayor Jaime Lerner.

Moreover, the leadership and human resource allocation also influence the economic and resource allocation part of the allocation work. In this regard, our data corroborates previous institutional work literature (RITVALA; KLEYMANN, 2012) by showing that market infrastructure and the value chain was created due to the capability of those working for the emergence of the hybrid market to seek for funding, and, more importantly, to effectively implement those financial resources that were coming from international, national, and state development banks. As Ritvala and Kleymann (2012) predict, we find that relational work plays a key role here too because the gatekeepers of the funding sources were mainly accessed through previous relational ties held by the hybrid market's leaders (in their words, mobilization, bridging and networking).

5.1.2 Regulation work

Regulation work is the institutional work for defining or changing the formal and informal rules and norms of exchange that (will) govern the emergence, creation or change of hybrid markets. Still, according to previous theory, regulation work is effectively reinforced through the installment of sanction regimes aiming at the prevention of deviant behaviors or practices (BECKERT, 2009b; FLIGSTEIN; CALDER, 2015; PHILLIPS; TURCO; ZUCKERMAN, 2013). In this concern, our findings reaffirm that institutional work projects (be it for creation, maintenance or disruption) are usually surrounded by power struggles and conflict to gain authority and control over market directions (DOBBIN, 2004; ZALD; LOUNSBURY, 2010;

ZIETSMA; LAWRENCE, 2010), and we find it is also true during regulation work in the case of hybrid market emergence.

Although we find support for the argument that regulation work must look beyond the fact that the state can function as an intervenor in markets' system of exchange (BIGGART; DELBRIDGE, 2004; REA, 2017; SCHNEIBERG; BARTLEY, 2008), we also find that the City Hall of Curitiba had to intervene to regain control of the local bus service market after a long period of harmful under-regulation, what is aligned with the findings of previous research (CAMPBELL, 2010; MIZRUCHI, 2010). In this regard, for implementing the humanizing logic in the city's Expresso bus transport system through the social fare, there they had to break the current local power structure at the time and negotiate, at the same time, material means of keeping them "in the business" even facing periods of deficit (what contradicts the cost-efficacy logic) by creating the compensation chamber mechanism.

The peculiarity of our research context in the BRT hybrid market emergence regarding regulation work adds to the current debate about the paradox of embedded agency in institutional work efforts (BATTILANA; D'AUNNO, 2009; DE LANGE, 2019). We show that IPPUC and the City Hall played a "double-agent" role in the BRT market mainly due to the multiplex character (GREENWOOD et al., 2011; SIMPSON, 2015) of such market. In this regard, while the public actors had regulatory power to change the market structure locally (and they did), they were just a small player in the value chain of the wider bus market industry (clients) at the time. Making an analogy, it is something like a small Group of Five college football conference would change the rules of the game internally aiming at proving to NCAA and Power Five conferences that the game of football had become a way better game under their rules when compared to the game played under the traditional set of rules.

Our findings reveal that as the set of regulations negotiated and enacted locally delivered the intended results, that is of social justice (humanizing logic), reduction of polluting gas emission (ecology logic), more functional design and layout (aesthetic logic), and more efficient and profitable operation (cost-efficacy logic), they gained enough traction to reinforce this set of regulations and the logics which were guiding them to a wider institutional context in later during hybrid market expansion and diffusion stage (creation of a national and international BRT market). Thus, we argue that our concept of regulation work elaborated on the hybrid market emergence case can also aggregate on knowledge about microfoundations of institutionalized and

diffused local practices, while extent research has focused on the adoption or the translation side of diffusion (ANSARI; FISS; ZAJAC, 2010; GOND; BOXENBAUM, 2013; GRAY; PURDY; ANSARI, 2015).

5.1.3 Classification work

Classification work is the definition and/or redefinition of the required standards for participating in the competitive landscape established during the emergence, creation or change of hybrid markets. Even though our concept of classification work resembles the more established concept of boundary work (LANGLEY et al., 2019; ZIETSMA; LAWRENCE, 2010), we argue that it helps to answer the call for research that "could also investigate how the results of microstrategies pursued at the local level are (occasionally) scaled up, spread, and become mainstreamed" (LANGLEY et al., 2019, p. 729). Our findings show that IPPUC's strategies to build the hybrid market (through allocation work) ended up resulting in classification work, because, by changing the market structure and the way it operates, the BRT became mainstream and market actors that were outside the emerging market had to catch up technologically and competitively the actors that were working for market emergence (Volvo and Marcopolo in the first effort and CAIO and Scania in a second moment, Mercedes-Benz only in the 2010s).

However, how does this classification work occur? In our case, we find resonance with previous literature arguing that standardization is an effective mean of classification (SLAGER; GOND; MOON, 2012; ZIETSMA et al., 2017). For example, at first instance, we find that IPPUC had tried to convince powerful actors of the incumbent bus market (e.g. Mercedes-Benz) to adhere to the aesthetic logic through the production of buses with more appropriate internal and external designs. As they found no interest from incumbents in changing their current market practices, IPPUC had to find strategies to defy them by coopting peripheric market actors (Marcopolo and Cummins) in their first attempt of creating an express bus system. After failing with this first effort, our data show that IPPUC used relational work to force bus standardization along with the Federal Government through the GEIPOT Padron Standard bus project.

Considering that Curitiba was far from being a relevant city in the 1970s and their demand for buses was not attractive for incumbent market actors to change their assembling lines in favor of the Expresso bus project, we also add to the literature by going beyond recent research efforts on institutional changes provoked by less powerful or resourceful actors (GHAFFARI; JAFARI; SANDIKCI, 2019). In this vein, we show that institutional work projects for the emergence of hybrid markets can involve apparently not powerful actors at a first glance if they get to compensate their lack for resources and power with high symbolic and relational capacity for bringing powerful and resourceful actors into the project. For example, our data show that when Volvo decided to become a part of the Expresso bus system adopting the totality of the Padron standard, and later developed the bi-articulated bus, they improved their relative position on the market (PODOLNY, 1993) and created a competitive barrier to any other manufacturer in what was soon to become the most sought after bus-based transport market of the world, the BRT.

5.1.4 Evaluation work

Evaluation work is the institutional work for changing the internal and/or external audience preferences and perception of value regarding the market participants and the products being exchanged in the creation, emergence or change of hybrid markets. In this regard, we argue that after evaluation work, the audience's perception of value is infused with logics from non-market realms (in our case, aesthetic, humanizing and ecology logics). Although evaluation is a relevant aspect of market consolidation (especially those originated from innovations), only scant attention has been given to understand how market organizations shape or inform audiences preferences or values in institutional complex contexts (GLYNN; LOUNSBURY, 2005; VORONOV; DECLERCQ; HININGS, 2013).

Thus, we contribute by showing that for a hybrid market to become diffused, evaluation work must occur in two fronts: internal audience (locally situated citizens, customers, gatekeepers, media), and external audience (adjacent market actors, funding agencies, financial institutions, potential hybrid market diffusers). Our findings show that the first step of evaluation work is convincing the local audience that the institutional work effort is valuable for them according to market and non-market criteria

(BECKERT; RÖSSEL; SCHENK, 2017). In the BRT hybrid market case in Curitiba, evaluation work was performed by showing the audience that the Expresso bus was a clean, comfortable, fast and reliable transport system as opposed to the dirty, slow, unpleasant, and unreliable traditional bus services.

We find that shaping the value perception of the internal audience is essential for a hybrid market transitioning from the consolidation state to the expansion and diffusing stage because “public evaluation imposes standards of legitimacy and accountability that profoundly shape evaluative practices” (LAMONT, 2012, p. 212) that are likely going to be carried to other contexts where the hybrid market ends up getting translated. For example, we show that the FTA and ITDP reports about the Curitiba’s bus rapid transit system emulate the same criteria (and logics inherent to them) that had arisen from the evaluation work held during the Expresso bus implementation and development. Thus, we add to both institutional work and sociology of market literature by showing evidence that, during the expansion and diffusion stage, convincing the local audience of the value of the hybrid market ends up encountering the challenges of the second front we mentioned above, that is selling the model to external audiences.

Regarding selling the BRT hybrid market model to an external audience, we join recent conversations in terms of research showing the role of relational work of market actors for promoting social change and taking advantage out of it (GIRSCHIK, forthcoming). In this concern, we find that the multiplicity of logics embedded in the BRT system became a hallmark for market actors selling it around the world (such as Volvo, Marcopolo, and the consultancy submarket that was originated in the 1990s) as a sustainable and cost-efficient solution for the mass transport problems found in cities from both developed and developing countries. Moreover, our findings also show that the actors involved in the hybrid market emergence process were invested in evaluation work even at supranational instances (such as United Nations and World Bank), conferring highly praised institutional support for the now established BRT hybrid market.

6 CONCLUDING REMARKS

The purpose of this doctoral dissertation was **to analyze how institutional complexity and institutional work performed by social actors lead to the emergence of a hybrid market in the context of urban innovation in transport systems**. We have analyzed the development of the bus rapid transit system in Curitiba, Brazil, as a major urban innovation and how it ended up as an emerging hybrid market, that is, a market in which the definition of formal and informal rules and norms underlying economic and social transactions, the infrastructure and resource allocation, the actors allowed to perform market exchanges and the roles performed by them, as well as the perception of value of the goods and services available in the marketplace, are socially constructed and defined by logics other than a solely economic-oriented one.

For achieving this main purpose of the research, we have followed five additional specific purposes. The first specific purpose was **characterizing the urban innovations that had occurred in the development of the bus rapid transit system**. For doing this, we have built a field narrative and a field chronology based upon interviews, archival and media coverage data that have allowed us to characterize nine major urban innovations, two at a pre-market emergence stage (the trinary system and the pedestrian streets network), and seven concerning the development of the Expresso bus system (the Veneza Expresso bus, the prepayment system, the social fare, the Integrated Transport Network, the tube stations and speedy bus lines, and the bi-articulated buses).

The field narrative and chronology were also the means which allowed us to achieve our second specific purpose, that was **identifying the main actors that were involved in the process of development of the bus rapid transit system market**. In terms of organizational actors, besides the City Hall of Curitiba, we identify that IPPUC and URBS were important in the public sphere; regarding private organizations, we identify the private bus operators, Volvo, Marcopolo, CAIO, Ciferal, FAM, and service providers (architecture offices and consultancy firms) as relevant actors for the emergence of the BRT hybrid market.

The third specific purpose was **capturing the underlying logics of the market that have emerged from the development of the bus rapid transit system in Curitiba**, which led us to capture four institutional logics influencing the practices of

the emerging hybrid market, that was cost-efficacy, humanizing, aesthetic and ecology logics. We were also able to find that the number of logics influencing the hybrid market grew as the hybrid market reached a consolidated (and stable) stage of development. In this regard, we identify that in the first stage (emergence) it was influenced by one dominant logic (cost-efficacy) and another adjacent one (aesthetic), in the second stage we identify two prevailing logics (cost-efficacy and humanizing) and a third adjacent logic (ecology). In the final stage of hybrid market emergence (expansion and diffusion), we find a full set of four institutional logics influencing the market, being three strongly influencing (cost-efficacy, ecology, and aesthetic) and a fourth logic in the adjacencies (humanizing).

The fourth specific purpose, **investigating the types of institutional work held by the previously identified actors to embed logics other than market logics during the emergence of the bus rapid transit hybrid market**, was achieved when we find that the market actors were invested in symbolic, material and relational work in each and every stage of hybrid market emergence for reinforcing the institutional logics other than the cost-efficacy one. We argue that the emergence of the BRT hybrid market has occurred through four types of institutional work: allocation, regulation, classification and evaluation work.

Our fifth and final specific purpose was **analyzing how the process of hybrid market emergence have unfolded during the implementation of the urban innovations in the bus rapid transit system in Curitiba**. We achieve this by proposing a grounded theory about the process of hybrid market emergence. Our theorizing states that the process of hybrid market emergence starts even before the market emergence itself, during the transition from a pre-market to a market emergence stage. We state that market emergence will occur through the allocation institutional work, in which market actors rely on symbolic, material and relational work to build the market infrastructure and invest financial and human resources necessary for the market operationalization.

The second stage of the process of hybrid market emergence is transitioning from the emergence to consolidation stage, in which actors invest on symbolic, material and relational work to the creation of norms and rules that govern the market practices and actions and to define the standards required for market actors to participate in the hybrid market exchanges. The third and final stage defines that the transition from the consolidation to expansion and diffusion stage requires symbolic,

material and relational work to change or establish the audience's perception of value regarding the hybrid market organizations and their offerings in terms of (products and services). In this regard, another key contribution resulting from our study is concerning the two kinds of evaluation work we identified in our findings, the first, for changing the internal audience value perception, and the second, that is for selling the hybrid market model to the external audience.

Moreover, our process theorizing of hybrid market emergence suggests that the hybrid market emergence will not be influenced by a multitude of logics out of the gate. We argue that market hybridization is gradual, that is, it will increase as the hybrid market becomes mature and stable after surpassing each stage of development. This gradual increase in the number of institutional logics influencing the emergent hybrid market is what we call "escalating institutional complexity".

Our process theorizing contributes to the literature of organizational institutionalism, sociology of markets and innovation studies. We provide a processual model of a major urban innovation (BRT) that have been developed throughout the past 40 years. We show how the urban innovation process unfolded from its inception to implementation, and we go farther by showing how this urban innovation has expanded and diffused to over 200 cities all over the world (e.g. Bogotá, in Colombia, Cleveland, in the United States, and Lyon, in France). Regarding the implementation of innovations, we contribute by showing that it, in the BRT case, it required from market actors to break the existing paradigms in mass transport, and, while doing it, they have defied the established power structures at local, national, and international levels.

We combine essential aspects of the sociology of markets and organizational institutionalism, and our process theorizing contributes to both fields. In the former, we contribute by providing to the studies of markets a dynamic view, containing the conflicts, struggles, and negotiations for embedding the market with adjacent non-economic goals (e.g. reducing the air pollution, achieving social justice, or improving the beauty of the design of market products). In the latter, we show how institutional complexity and work occurs in a context that is understudied, that is the context of markets that emerged from large-scale urban innovations. We contribute by proposing four types of institutional work that are need for the emergence of hybrid markets (allocation, regulation, classification and evaluation work). Moreover, we add to the

hybridization studies by showing how this process translates from hybrid organizing contexts to a hybrid market context.

Our process theorizing about the emergence of hybrid markets can also become valuable for **practitioners**. Public managers and City Hall administrations can rely on our process theorizing to develop hybrid markets in several key areas of public service that affect global population's quality-of-life and well-being (i.e. grand societal challenges), such as sanitation, public health, housing, food production and distribution, trash collection and recycling or even education. We show them that to create a successful hybrid market, there is the need to establish trustful relationships with market actors and funding agencies, and that it can be built through symbolic work to develop shared codes and languages, relational work to show market actors the value of adding adjacent logics to cost-efficacy rationales and to find partners that believe in the project (like Marcopolo, Volvo, and other market actors did in the case of Curitiba) and material work to implement the hybrid market and to effectively make it work.

We also provide them insights on how to combine the best out of private market actors (efficacy, capability to produce the urban innovations, and their ability to spread the social benefits of the hybrid market beyond its original context through diffusion mechanisms) with the best out of the public organizations (effectively organizing the market through regulation work, a systemic view of the market that allows seeing beyond the private market eyes can reach in terms of environmental, social, and even cultural positive impacts of the emergence of hybrid markets, their deep understanding of the needs of the city's populations that need to be addressed by the hybrid market actors). In this regard, we argue that public managers must develop capable multidisciplinary teams (like IPPUC did) and strong leadership structures (like Jaime Lerner, for example, was able to do) with a clear understanding about how to connect with private market actors and with the general society with a clear understanding on how the hybrid market will develop in the long term (30 plus years, in the case of Curitiba).

Moreover, we state that public managers can learn from the case of the emergence of the BRT hybrid market that inexpensive creative solutions can and must be found locally through urban innovations. Additionally, the case shows that resisting the pressure for implementing sophisticated and more complex imported solutions (i.e. the light-rail vehicles, tramways, or subways) in detriment of developing the local

solution further is essential achieving fine-tuned urban innovations. If Curitiba had not resisted, this doctoral dissertation would likely be about any other innovation, and not about the acclaimed bus rapid transit system. In this regard, we encourage local urban planners to look inside their cities before looking out of it, because our case is an exemplar of urban innovation that was developed in the context of a medium city in a developing economy that has been spreading to cities in the United States, Canada, Europe, Australian and several other developed economies.

The implications of our process theorizing are not limited to public organizations, managers, and administrations. We show that private companies that are able to identify the transitions between pre-market and hybrid market emergence stage are more likely to become successful on the hybrid market due to the first-mover advantage (Marcopolo and Volvo became the flagship private organizations of the BRT model all over the world). Moreover, we show that when private market actors understand the institutional complexity of the hybrid markets, they can activate symbolic, relational, and material work to instate and reinforce dominant logics from the institutional environment to align their goals to the current necessity of their audience through evaluation work. For example, Volvo was able to see beyond the immediate market context (focused on the cost-efficacy logic) when they instated and reinforced an ecology logic in their discourses and practices. The manufacturer was the first in the bus industry to sell to the audience that their BRT-specific buses are ecological solutions for mass transport systems, and it brought benefits for them (more revenue) and also for the society (cleaner buses causes less environmental harms). The same is also true for Marcopolo when they decided to adhere to the aesthetic logic in the market emergence stage when no other bus body manufacturer did it.

We also argue that private organizations can take advantage of the relationships established with urban planners of innovative cities like Curitiba. The BRT as a transport system was mainly invented and developed by IPPUC and URBS' staff, but the end product of such development was a transport model that was ready to be adapted and sold by actors from the value chain to any other city in the world. Although the companies that are part of the development of the urban innovations may not guarantee access to other markets, they will certainly have a convincing argument to get it by having the know-how and the connections (social capital) to make the hybrid market work in contexts other than where they were invented.

Our work also brings contributions to the city of Curitiba. First, we believe that showing how the BRT development unfolded makes justice for the shading light to many local people that was involved in the process and that might have been left in the dark and are not known by the worldwide audience (Carlos Ceneviva, Osvaldo Navarro, Lubomir Ficinski, Rafael Dely, Karlos Rischbieter, Abrão Assad, Lauro Tomizawa among others we mentioned in this doctoral dissertation). Second, we believe our work can personally impact the Curitibano's life by showing that one of the world's most impactful urban innovations of the last century brings along a typical Curitibano accent[39].

In this regard, our work can be a source of encouragement for the new wave of urban planners that are now (and will be in the future) in charge of thinking the city for the next decades. We argue that building upon the work of the previous generation of the Sorbonne of Juvevê (IPPUC's local moniker given by the journalist Luiz Geraldo Mazza) understanding deeply the process of hybrid market emergence will be helpful for the city to replicate this model to prepare the city to face the new context we are living today (the one of the sharing economy, and the internet-of-things, but that still has the same old problems in terms of social inequality). Thus, we believe the city's urban planners can use the hybrid market model to create and develop urban innovations in other areas beyond public transport to turn the city that people live in a better place.

Furthermore, we argue that our research is not exempt from limitations. As our process theorizing emerged from contextualized data (that is, from a case study of the BRT development in Curitiba, Brazil), it may not be generalizable or translatable to other settings or markets as it is. We also recognize the methodological limitations of our study, since we were not able to access more actors from private organizations to confront our findings. Another limitation was that some actors of the development of the BRT in Curitiba were not interviewed either because they refused to participate in the research or because they were no longer alive during our data collection period.

Finally, we present possible avenues for future research that can further investigate the hybrid market emergence phenomenon. First, we believe that beyond market emergence, our process theorizing could find resonance on change of mature

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[39] BRT'Ê', that combines well with our 'leitE quentE' way of talking.

markets towards hybridization. Moreover, we believe that future research could provide insightful contributions by investigating if the process of hybrid market emergence would find similar results in markets where the public organizations do not take the lead as in our case. We also urge scholars to research what happens after hybrid market expansion and consolidation, that is, one could ask, how does a hybrid market gets translated to other contexts? Do the institutional logics of the original context are carried in the new context's hybrid market practices? How do incumbents from these markets would react (maintenance work) to any endeavor to implement a hybrid market?

Theoretically, we urge scholars to investigate how our process theorization about hybrid market emergence can be combined with current discussions being held in the social knowledge, social impact, social value and social innovation literature. In this regard, future studies could investigate if social entrepreneurs and third sector representatives can become the source of market hybridization in other contexts. In this vein, we also encourage scholars from engaged in the collective action and social movement organizations literature to embrace the hybrid market phenomenon in their future studies, specifically considering how the pressure from media, social media, protests and lobbies can affect (or deter) the emergence of hybrid markets.

Another avenue for future studies is understanding how hybrid markets can emerge, consolidate, diffuse and even disappear in contexts that are much more dynamic than the one we study here. For example, one can investigate the sharing economy phenomenon and the emergence of hybrid markets from the development of apps that are embedded with multiple adjacent institutional logics. This context is relevant because the typically short life cycle of such markets can provide evidence about how hybrid markets fade away, something that our study was not able to address through the BRT hybrid market case.

We conclude stating that our thesis regarding the process of hybrid market emergence is the first effort in the direction of exploiting the knowledge about hybrid markets, and we hope our results will inspire scholars from innovation, organizational institutionalism and sociology of markets to investigate such phenomenon further. Hybrid markets are not the panacea for solving every social or environmental problem of the world. However, we show that they can be a great start in the direction of finding creative solutions for the grand societal challenges like the problem of mass transport in urban areas.

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APPENDIX A – INTERVIEW PROTOCOL

I - INTRODUÇÃO

1. Como se deu o **processo de criação** do sistema de transporte urbano de Curitiba?
2. Quais foram os **atores** envolvidos e quais **papéis** eles tiveram na criação e evolução do STPU?
3. Como foram definidas as **bases para participação** de cada ator?
4. Quem **defendeu** o sistema existente e quem se opôs?
5. Quais foram as **diferenças de ponto de vista** entre esses atores? Houve discussão? Houve um **acordo** ou uma das visões acabou se sobrepondo às demais?

II – RELAÇÕES PARA INOVAÇÃO

6. Como foram **coordenadas as atividades** entre os órgãos?
7. Quais habilidades e ou **capacidades foram desenvolvidas** para lidar com os parceiros? Integração e ações formalizadas?
8. Como se lidou com a **questão cultural** no processo?
9. Como foi construído a **confiança**? Foram estabelecidos **normas**?
10. Como o **conhecimento foi gerado** e compartilhado?
11. Como ocorreu o **processo de comunicação** e *feedback?* Ouve **recompensas** e incentivos?
12. Como é o **aspecto tecnológico** das organizações?
13. Como a tecnologia é **gerada** e **compartilhada**?
14. Quais **rotinas** e sistemas foram desenvolvidos para gerenciar as inovações?
15. Como é a questão das **relações entre pessoas**?
16. As parcerias têm melhorias **contínuas**? Como são avaliadas?

III – MUDANÇAS

17. Quais as **mudanças** que você presenciou no sistema que considera fundamentais?
18. Por que essas mudanças ocorreram?
19. Quais foram os **atores fundamentais** para essas mudanças?
20. Como elas ocorreram?

IV – MERCADO E VALORES

21. Quais os **valores** que acredita estarem por trás do sistema de transporte urbano de Curitiba?
22. Qual a importância dos **aspectos verdes** (sustentáveis) para os atores do STPU?
23. Qual a importância dos **aspectos sociais** (inclusão, acessibilidade, etc.) para os atores do STPU?
24. Como você acredita que esses aspectos mencionados impactam o **funcionamento** do STPU como um mercado?

25. Como são definidas as **regras de transações** de mercado relacionadas ao STPU? (leis, acordos bipartites, etc.)
26. Como são definidos os **critérios de investimento** no mercado relacionado ao STPU? (motores verdes, híbridos, elétricos, biodiesel, etc.). Isso impacta a escolha dos **fornecedores**?
27. Como são **avaliados os produtos/serviços** originados pelo STPU pelos atores envolvidos no seu processo de desenvolvimento?

IV – FECHAMENTO

28. Como você se sente quando pensa no STPU ou quando vê a sua trajetória?
29. Você se sente parte do que o STPU se tornou? Em que sentido?
30. Você sente **orgulho** do STPU? Por que?
31. E quando às limitações do STPU, o que você pensa ou sente?
32. Você acredita que o STPU se tornou um **negócio** para as empresas e até mesmo para os atores públicos? Por que?

APPENDIX B – LIST OF RESEARCH INTERVIEWS

ID	Position	Affiliation	Date	File	Time
INT1	Manager of Transport Technology	URBS	April 29, 2016	110318_002	01:08:56
INT2	Maintenance Manager	Volvo / Redentor (Operator)	June 17, 2016	110506_001	00:47:36
INT3	Corporate Manager	Sorriso (Operator)	June 17, 2016	110506_003	00:28:27
INT4	Manager of Transport Operations	URBS	March 27, 2019	190327_001	00:58:57
INT5	Senior manager / Architect and urban planner	IPPUC/URBS	March 28, 2019	190328_001	01:19:16
INT6	President	UFPR/URBS	March 29, 2019	190329_001	01:10:06
INT7	Secretary of Planning and Administration	UFPR/PMC	March 29, 2019	190329_001	
INT8	Director of Transit / Engineer	URBS/SETRAN	April 1st, 2019	190401_001	01:05:08
INT9	Supervisor / Engineer	SMOP/PMC	April 2nd, 2019	190402_001	01:08:51
INT10	Operations Manager / Transport Manager / Consultant	URBS/COMEC/ UFPR/Consultancy	April 3rd, 2019	190403_001	02:54:41
INT11	Director of Transport / Public Transit Manager	IPPUC/URBS	April 10, 2019	190410_001	01:41:44
INT12	Planning and Operations Manager / Engineer	URBS/SETRAN	April 12, 2019	190412_001	01:00:50
INT13	Interim president / Director of Transport	PMC/URBS/IPPUC	April 16, 2019	190416_001	01:27:46
INT14	President / Architect and urban planner	IPPUC/URBS	April 26, 2019	n/a	02:41:27
INT15	Fleet manager / Manager of Transport Technology	URBS	April 29, 2019	190429_001	00:49:04
INT16	Manager of Transit and Operations / Engineer	IPPUC	April 30, 2019	190430_001	00:45:08
INT17	President / Mayor	IPPUC/PMC	May 9th, 2019	190509_001	01:51:30
INT18	Director of Transport / Consultant	COMEC/URBS/ Consultancy	June 6th, 2019	190606_001	01:20:57
INT19	Journalist / Press officer	IPPUC/URBS/PMC	July 18, 2019 September 4th, 2019	190718_001 190904_001	02:08:31 02:26:14
INT20	Architect and urban planner	Architecture office	July 20, 2019	190720_001	02:22:42
INT21	Architect and urban planner	IPPUC	July 23, 2019	190722_001	01:10:04

INT22	Manager of Transit Control/ Consultant	IPPUC/Volvo/ Consultancy	July 31, 2019	190731_001	02:01:06
INT23	President / Architect and urban planner	IPPUC	December 6th, 2019	191206_001	02:49:53

APPENDIX C – MEDIA COVERAGE INVENTORY

ID	Date	Newspaper	Topic	Pages
1949N298	abr/49	Gazeta do Povo	Crítica	1
1949N299	mai/49	Gazeta do Povo	Crítica	1
1959N535	jun/59	Diário do Paraná	Trólebus como alternativa	1
1965N050	ago/65	Curitiba em Ação	Obras	6
1968N603	out/68	Diário do Paraná	IPPUC / Jaime Lerner	1
1968N601	nov/68	Diário da Tarde	Plano Diretor	1
1968N602	nov/68	Diário da Tarde	Plano Diretor	1
1970N591	mar/70	Diário do Paraná	Transporte de massa	1
1971N604	jul/71	Diário da Tarde	Implantação Sistema Viário	1
1971N416	out/71	Voz do Paraná	Sistema viário	1
1972N605	jun/72	Diário da Tarde	Alternativas ao Expresso	1
1972N555	jul/72	Diário da Tarde	Críticas	1
1972N606	jul/72	Diário da Tarde	Sistema viário / Expresso	1
1972N536	set/72	Diário da Tarde	Sistema viário	1
1972N607	out/72	Diário da Tarde	Planejamento de transporte	1
1973N608	jul/73	Diário da Tarde	Implantação Sistema Viário	1
1973N584	ago/73	Revista Manchete	Expresso / Humanização	3
1973N481	set/73	Diário do Paraná	Terminais	3
1973N473	nov/73	Dário da Tarde	Terminais	3
1974N609	fev/74	Dário da Tarde	Expresso	1
1974N484	fev/74	Estado do Paraná	Expresso	1
1974N325	fev/74	Gazeta do Povo	Expresso	1
1974N551	mar/74	Diário da Tarde	Implantação Sistema Viário	1
1974N326	abr/74	Diário do Paraná	Expresso	1
1974N610	mai/74	Diário da Tarde	Expresso	1
1974N472	mai/74	Diário do Paraná	Expresso	1
1974N611	jun/74	Diário da Tarde	Expresso	1
1974N467	jun/74	Estado do Paraná	Expresso	1
1974N328	jun/74	Gazeta do Povo	Expresso	1
1974N329	jun/74	Gazeta do Povo	Expresso	3
1974N468	jun/74	Gazeta do Povo	Expresso	1
1974N327	jun/74	Jornal Imobiliário	Expresso	10
1974N330	jul/74	Diário do Paraná	Expresso	3
1974N331	jul/74	Diário do Paraná	Expresso	5
1974N470	jul/74	Diário do Paraná	Expresso	1
1974N485	jul/74	Diário do Paraná	Expresso	1
1974N471	jul/74	Estado do Paraná	Terminais	2
1974N347	ago/74	Gazeta do Povo	Expresso	1
1974N612	ago/74	Diário da Tarde	Expresso / semafórica	1
1974N346	ago/74	Gazeta do Povo	Expresso / semafórica	1
1974N349	set/74	Diário da Tarde	Expresso	1
1974N592	set/74	Diário da Tarde	Expresso	1
1974N593	set/74	Diário da Tarde	Expresso	1
1974N333	set/74	Diário do Paraná	Expresso	4

1974N335	set/74	Diário do Paraná	Expresso	4
1974N337	set/74	Diário do Paraná	Expresso	4
1974N332	set/74	Estado do Paraná	Expresso	1
1974N334	set/74	N/A	Expresso	2
1974N336	set/74	N/A	Expresso	1
1974N053	set/74	Panorama	Inauguração expresso	9
1974N338	out/74	Estado do Paraná	Expresso	1
1974N339	out/74	Estado do Paraná	Expresso	2
1974N588	nov/74	Jornal do Brasil	Expresso	1
1974N340	dez/74	Gazeta do Povo	Expresso	1
1974N585	dez/74	O Pasquim	IPPUC / Difusão	1
1975N155	jan/75	Folha de Londrina	Metrô / Evolução do sistema	7
1975N341	fev/75	Voz do Paraná	Expresso / Rafael Dely	1
1975N480	fev/75	Diário do Paraná	Terminais	1
1975N587	mar/75	Pioneiro	Expresso / Propaganda	1
1975N101	abr/75	Diário do Paraná	Histórico / evolução	1
1975N103	abr/75	Estado do Paraná	Histórico / evolução	1
1975N102	abr/75	Voz do Paraná	Histórico / evolução	1
1975N537	mai/75	Diário da Tarde	Volvo em Curitiba	1
1975N539	mai/75	Diário do Paraná	Volvo em Curitiba	1
1975N342	jun/75	Gazeta do Povo	Expresso / Crítica	1
1975N343	set/75	Diário do Paraná	Expresso	1
1975N344	out/75	Gazeta do Povo	Expresso / Melhorias	1
1976N478	fev/76	Diário do Paraná	Expresso	1
1976N345	abr/76	Diário do Paraná	Expresso / Expansão	1
1976N348	jul/76	Gazeta do Povo	Expresso	2
1976N453	jul/76	Diário do Paraná	Seletivo	1
1976N454	jul/76	Estado do Paraná	Seletivo	1
1976N538	set/76	Diário da Tarde	Volvo em Curitiba	1
1976N540	out/76	Diário da Tarde	Volvo em Curitiba - oficial	1
1977N300	jan/77	Gazeta do Povo	Expresso	1
1977N350	mar/77	Gazeta do Povo	Expresso	1
1977N352	mai/77	Estado do Paraná	Expresso	7
1977N353	jun/77	Correio de Notícias	Expresso	1
1977N418	jul/77	Estado do Paraná	Críticas	1
1977N417	set/77	Gazeta do Povo	Histórico / evolução	1
1977N354	out/77	Correio de Notícias	Expresso / Expansão	1
1977N351	dez/77	Gazeta do Povo	Expresso / articulado	4
1978N255	jun/78	Gazeta do Povo	Bilhetagem	1
1978N254	jun/78	Correio de Notícias	Bilhetagem / Empregos	1
1978N357	ago/78	Correio de Notícias	Expresso / articulado	2
1978N358	ago/78	Correio de Notícias	Expresso / articulado	1
1978N359	ago/78	Correio de Notícias	Expresso / articulado	1
1978N361	ago/78	Correio de Notícias	Expresso / articulado	1
1978N363	ago/78	Correio de Notícias	Expresso / articulado	1
1978N542	ago/78	Diário da Tarde	Expresso / articulado	2
1978N543	ago/78	Diário da Tarde	Expresso / articulado	1
1978N356	ago/78	Diário do Paraná	Expresso / articulado	1

1978N362	ago/78	Diário do Paraná	Expresso / articulado	1
1978N364	ago/78	Diário do Paraná	Expresso / articulado	1
1978N360	ago/78	Jornal dos Bairros	Expresso / articulado	1
1978N355	ago/78	Gazeta do Povo	Expresso / semafórica	1
1978N483	dez/78	Jornal dos Bairros	Terminais	1
1979N464	jan/79	Gazeta do Povo	Linhas	1
1979N208	jan/79	Gazeta do Povo	Ônibus articulados	1
1979N544	fev/79	Diário da Tarde	Ônibus articulados (Scania)	1
1979N469	fev/79	Gazeta do Povo	Terminais	1
1979N365	mar/79	Correio de Notícias	Alternativas ao Expresso	1
1979N366	mar/79	Correio de Notícias	Alternativas ao Expresso	1
1979N457	jul/79	Estado do Paraná	Expansão do sistema	1
1979N367	jul/79	Estado do Paraná	Expresso / Expansão	1
1979N297	jul/79	Diário do Paraná	Gratuidade / Auxílio	1
1979N545	ago/79	Diário da Tarde	Volvo / motor flex	1
1979N541	ago/79	Diário do Paraná	Volvo / motor flex	1
1979N368	ago/79	Jornal dos Bairros	Expresso / articulado	1
1979N369	set/79	Jornal dos Bairros	Expresso	1
1979N550	set/79	Diário da Tarde	Expresso / Expansão	1
1979N370	set/79	Diário do Paraná	Expresso / Expansão	1
1979N459	set/79	Diário do Paraná	Interbairros	1
1979N460	set/79	Estado do Paraná	Interbairros	1
1979N458	set/79	Gazeta do Povo	Interbairros	2
1979N461	set/79	Jornal dos Bairros	Interbairros	1
1979N546	out/79	Diário da Tarde	Alternativas ao Expresso	1
1979N547	out/79	Diário da Tarde	Transferência de tecnologia	1
1979N256	out/79	Gazeta do Povo	Bilhetagem	1
1979N548	nov/79	Diário da Tarde	Ônibus padron	1
1979N301	nov/79	Diário do Paraná	Alternativas ao Expresso	1
1979N257	nov/79	Diário do Paraná	Bilhetagem	1
1979N259	nov/79	Diário do Paraná	Bilhetagem	1
1979N479	nov/79	Diário do Paraná	Terminais	1
1979N302	dez/79	Gazeta do Povo	Expansão do sistema	1
1979N371	dez/79	Estado do Paraná	Expresso / Expansão	1
1980N559	jan/80	Diário da Tarde	Bilhetagem / Expansão	1
1980N262	jan/80	Diário do Paraná	Bilhetagem	1
1980N264	jan/80	Diário do Paraná	Bilhetagem	1
1980N265	jan/80	Diário do Paraná	Bilhetagem	1
1980N258	jan/80	Gazeta do Povo	Bilhetagem	1
1980N260	jan/80	Gazeta do Povo	Bilhetagem	1
1980N261	jan/80	Gazeta do Povo	Bilhetagem	1
1980N263	jan/80	Gazeta do Povo	Bilhetagem	1
1980N266	jan/80	Diário do Paraná	Bilhetagem / Empregos	1
1980N452	jan/80	Diário do Paraná	Linhas	1
1980N475	fev/80	Estado do Paraná	Alternativas ao Expresso	1
1980N303	fev/80	Gazeta do Povo	Difusão / adoção	1
1980N373	mar/80	Diário do Paraná	Expansão do sistema	1
1980N372	mar/80	Gazeta do Povo	Expresso / Expansão	1

1980N552	mar/80	Diário da Tarde	Tarifa social	1
1980N233	mar/80	Diário do Paraná	Tarifa social	1
1980N462	mar/80	Diário do Paraná	Tarifa social	1
1980N232	mar/80	Estado do Paraná	Tarifa social	1
1980N234	mar/80	Estado do Paraná	Tarifa social	1
1980N267	abr/80	Correio de Notícias	Bilhetagem / Empregos	1
1980N237	abr/80	Correio de Notícias	Tarifa social	1
1980N235	abr/80	Diário do Paraná	Tarifa social	1
1980N236	abr/80	Estado do Paraná	Tarifa social	1
1980N374	jul/80	Gazeta do Povo	Expresso / Expansão	1
1980N375	ago/80	Gazeta do Povo	Expresso / Crítica	1
1980N463	set/80	Gazeta do Povo	Expresso	1
1980N321	set/80	Gazeta do Povo	Terminal / Chiqueirinho	1
1980N322	out/80	Gazeta do Povo	Terminal / Chiqueirinho	1
1980N304	nov/80	Gazeta do Povo	Críticas	1
1980N376	nov/80	Estado do Paraná	Expresso / articulado	1
1980N100	nov/80	Estado do Paraná	Histórico / evolução	1
1980N553	nov/80	Diário da Tarde	Tarifa social / RIT	1
1980N181	dez/80	Tribuna do Paraná	Crise do petróleo	1
1980N554	dez/80	Diário da Tarde	Campanha RIT	1
1980N556	dez/80	Diário da Tarde	Campanha / Combustível	1
1980N549	dez/80	Diário da Tarde	Expresso / Expansão	1
1980N377	dez/80	Diário do Paraná	Expresso / Expansão	1
1980N099	dez/80	Jornal dos Bairros	Histórico / evolução	1
1980N170	dez/80	Diário do Paraná	Melhorias	1
1980N134	dez/80	Diário do Paraná	RIT	1
1981N268	mar/81	Estado do Paraná	Bilhetagem	1
1981N378	abr/81	Diário do Paraná	Bilhetagem	1
1981N144	abr/81	Gazeta do Povo	Ligeirinho	1
1981N238	abr/81	Estado do Paraná	Tarifa social	1
1981N273	jun/81	Diário do Paraná	Alternativas ao Expresso	1
1981N161	jul/81	Gazeta do Povo	Expansão do sistema	1
1981N126	jul/81	Estado do Paraná	Nota de esclarecimento	1
1981N052	jul/81	Panorama	Tarifa / custos	6
1981N209	ago/81	Gazeta do Povo	Jaime Lerner	1
1981N104	ago/81	Estado do Paraná	Tarifa	1
1981N557	set/81	Diário da Tarde	Tarifa / Crise	1
1981N239	set/81	Diário do Paraná	CPI das tarifas	1
1981N379	set/81	Estado do Paraná	Histórico / evolução	1
1981N474	out/81	Gazeta do Povo	Terminais	1
1981N213	dez/81	Gazeta do Povo	Linhas	1
1982N482	fev/82	Diário do Paraná	Terminais	1
1982N240	mar/82	Gazeta do Povo	Tarifa	1
1982N586	mai/82	O Cruzeiro	Alternativas ao Expresso	2
1982N305	mai/82	Gazeta do Povo	Críticas	1
1982N212	jun/82	Gazeta do Povo	Aprovação do sistema	1
1982N380	set/82	Estado do Paraná	Histórico / evolução	1
1982N172	dez/82	Gazeta do Povo	Melhorias	1

1983N211	fev/83	Diário Popular	Alternativas ao Expresso	1
1984N306	fev/84	Jornal do Estado	Alternativas ao Expresso	1
1984N278	fev/84	Gazeta do Povo	Expansão do sistema	1
1984N494	mai/84	Correio de Notícias	Alternativas ao Expresso	1
1984N499	mai/84	Diário Popular	Alternativas ao Expresso	1
1984N500	mai/84	Diário Popular	Alternativas ao Expresso	1
1984N511	mai/84	Diário Popular	Alternativas ao Expresso	1
1984N505	mai/84	Estado do Paraná	Alternativas ao Expresso	1
1984N501	mai/84	Folha de Curitiba	Alternativas ao Expresso	1
1984N514	mai/84	Folha de Curitiba	Alternativas ao Expresso	1
1984N506	mai/84	Gazeta do Povo	Alternativas ao Expresso	4
1984N513	mai/84	Gazeta do Povo	Alternativas ao Expresso	2
1984N520	mai/84	Gazeta do Povo	Alternativas ao Expresso	1
1984N502	mai/84	Indústria e Comércio	Alternativas ao Expresso	1
1984N515	mai/84	Indústria e Comércio	Alternativas ao Expresso	1
1984N493	mai/84	Jornal do Estado	Alternativas ao Expresso	1
1984N504	mai/84	Jornal do Estado	Alternativas ao Expresso	1
1984N507	mai/84	Jornal do Estado	Alternativas ao Expresso	1
1984N518	mai/84	Jornal do Estado	Alternativas ao Expresso	1
1984N527	mai/84	Jornal do Estado	Alternativas ao Expresso	1
1984N530	mai/84	Jornal do Estado	Alternativas ao Expresso	2
1984N503	mai/84	Tribuna do Paraná	Alternativas ao Expresso	1
1984N509	mai/84	Tribuna do Paraná	Alternativas ao Expresso	1
1984N510	mai/84	Tribuna do Paraná	Alternativas ao Expresso	1
1984N526	mai/84	Tribuna do Paraná	Alternativas ao Expresso	1
1984N508	mai/84	Estado do Paraná	Congresso ANTP	1
1984N524	mai/84	Estado do Paraná	Congresso ANTP	1
1984N488	mai/84	Gazeta do Povo	Congresso ANTP	1
1984N521	mai/84	Gazeta do Povo	Congresso ANTP	3
1984N522	mai/84	Gazeta do Povo	Congresso ANTP	1
1984N489	mai/84	Gazeta Mercantil	Congresso ANTP	1
1984N490	mai/84	Gazeta Mercantil	Congresso ANTP	1
1984N491	mai/84	Gazeta Mercantil	Congresso ANTP	1
1984N492	mai/84	Gazeta Mercantil	Congresso ANTP	2
1984N495	mai/84	Gazeta Mercantil	Congresso ANTP	1
1984N497	mai/84	Gazeta Mercantil	Congresso ANTP	1
1984N523	mai/84	Jornal do Estado	Congresso ANTP	1
1984N528	mai/84	Jornal do Estado	Congresso ANTP	1
1984N496	mai/84	Gazeta Mercantil	Crise / mercado de ônibus	1
1984N498	mai/84	Indústria e Comércio	Críticas / Desmonte IPPUC	1
1984N519	mai/84	Jornal do Estado	Críticas / social	1
1984N512	mai/84	Folha de Curitiba	Difusão / adoção	1
1984N294	mai/84	Jornal do Estado	Gratuidade / Auxílio	1
1984N529	mai/84	Gazeta do Povo	Integração / RMC	1
1984N516	mai/84	Estado do Paraná	Licitação / concessão	3
1984N517	mai/84	Estado do Paraná	Licitação / concessão	1
1984N525	mai/84	Folha de Curitiba	Tecnologia no sistema	1
1984N295	jul/84	Gazeta do Povo	Gratuidade / Auxílio	1

1984N269	out/84	Folha Metropolitana	Alternativas ao Expresso	1
1985N115	fev/85	Gazeta do Povo	Difusão / adoção	1
1985N296	mar/85	Estado do Paraná	Gratuidade / Auxílio	1
1985N210	jun/85	Gazeta do Povo	Alternativas ao Expresso	1
1985N316	nov/85	Correio de Notícias	Gratuidade / Auxílio	1
1985N477	dez/85	Jornal do Estado	Expresso	1
1985N197	dez/85	Jornal do Estado	Tarifa	1
1986N245	fev/86	Correio de Notícias	Bilhetagem / Vale transporte	1
1986N246	fev/86	Correio de Notícias	Bilhetagem / Vale transporte	1
1986N241	fev/86	Correio de Notícias	Tarifa / bilhetagem	1
1986N247	mar/86	Correio de Notícias	Bilhetagem / Vale transporte	1
1986N248	mar/86	Correio de Notícias	Bilhetagem / Vale transporte	1
1986N249	mar/86	Correio de Notícias	Bilhetagem / Vale transporte	1
1986N215	mar/86	Jornal do Estado	Críticas	1
1986N381	mar/86	Jornal do Estado	Expresso / terminais	1
1986N382	abr/86	Jornal do Estado	Expresso / Expansão	1
1986N307	nov/86	Gazeta do Povo	Investimentos / melhorias	4
1987N136	jan/87	Correio de Notícias	Reforma administrativa	1
1987N203	jan/87	Correio de Notícias	Reforma administrativa	1
1987N242	jan/87	Correio de Notícias	Reforma administrativa	1
1987N594	fev/87	Correio de Notícias	Reforma administrativa	1
1987N595	fev/87	Correio de Notícias	Reforma administrativa	1
1987N596	fev/87	Correio de Notícias	Reforma administrativa	1
1987N597	fev/87	Correio de Notícias	Tarifa	1
1987N200	fev/87	Gazeta do Povo	Tarifa	1
1987N598	jul/87	Correio de Notícias	Bilhetagem / Vale transporte	1
1987N599	ago/87	Correio de Notícias	Difusão / adoção	1
1987N124	set/87	Gazeta do Povo	Difusão / adoção	1
1987N270	set/87	Jornal do Estado	Difusão / adoção	1
1987N216	set/87	Gazeta do Povo	Integração	1
1987N600	set/87	Correio de Notícias	Planejamento de transporte	1
1987N149	out/87	Veja	Bilhetagem	1
1987N589	out/87	Correio de Notícias	Frota Pública	1
1987N272	out/87	Estado do Paraná	Frota Pública	1
1987N419	out/87	Estado do Paraná	Plano diretor	1
1987N214	nov/87	Correio de Notícias	Histórico / evolução	1
1987N031	nov/87	Jornal do Estado	Ônibus	1
1987N206	nov/87	Estado do Paraná	Propaganda CAIO	1
1988N590	mar/88	Correio de Notícias	Reforma administrativa	1
1988N217	jul/88	Correio de Notícias	Críticas	1
1989N558	fev/89	Correio de Notícias	Estações Tubo	2
1989N412	mar/89	Gazeta do Povo	Estações Tubo	2
1989N113	mar/89	Indústria e Comércio	Linhas	1
1989N199	abr/89	Jornal do Estado	Crítica ao sistema	1
1989N191	mai/89	Estado do Paraná	Frota / Emissões	1
1989N476	jun/89	Tribuna do Paraná	Terminais	1
1989N204	jul/89	Estado do Paraná	Sistema viário	1
1990N413	jul/90	Indústria e Comércio	Estações Tubo	1

1990N421	jul/90	Estado do Paraná	Ligeirinho	1
1990N560	ago/90	Correio de Notícias	Ligeirinho / meio-ambiente	1
1990N561	ago/90	Correio de Notícias	Estações Tubo	1
1990N562	ago/90	Correio de Notícias	Estações Tubo	1
1990N308	set/90	Correio de Notícias	Frota	1
1990N423	out/90	Correio de Notícias	Estações Tubo	1
1990N424	out/90	Indústria e Comércio	Estações Tubo	1
1990N563	nov/90	Correio de Notícias	Estações Tubo	1
1990N565	nov/90	Correio de Notícias	IPPUC / Difusão	1
1990N422	nov/90	Estado do Paraná	Ligeirinho	1
1990N456	dez/90	Gazeta do Povo	Linhas	1
1990N455	dez/90	Indústria e Comércio	Linhas	1
1991N567	fev/91	Correio de Notícias	Estações Tubo / Ligeirinho	1
1991N425	fev/91	Gazeta do Povo	Ligeirinho	1
1991N426	fev/91	Indústria e Comércio	Ligeirinho	1
1991N318	mar/91	Gazeta do Povo	Sites	1
1991N384	abr/91	Indústria e Comércio	Anúncio PMC / Sistema	4
1991N570	abr/91	Correio de Notícias	Críticas	1
1991N582	abr/91	Jornal do Brasil	Difusão / Ligeirinho	1
1991N152	abr/91	Estado do Paraná	Estações Tubo	1
1991N427	abr/91	Estado do Paraná	Estações Tubo	2
1991N285	abr/91	Correio de Notícias	Ligeirinho	1
1991N564	abr/91	Correio de Notícias	Ligeirinho	1
1991N566	abr/91	Correio de Notícias	Ligeirinho	1
1991N569	abr/91	Correio de Notícias	Ligeirinho	1
1991N284	abr/91	Diário Popular	Ligeirinho	1
1991N157	abr/91	Estado do Paraná	Ligeirinho	1
1991N286	abr/91	Estado do Paraná	Ligeirinho	1
1991N271	abr/91	Gazeta do Povo	Ligeirinho	1
1991N428	abr/91	Istoé	Ligeirinho	1
1991N383	abr/91	Jornal do Estado	Ligeirinho	2
1991N054	abr/91	N/A	Ligeirinho	1
1992N431	jun/91	Correio de Notícias	Ligeirinho	2
1991N429	jun/91	Gazeta do Povo	Ligeirinho	1
1991N385	jul/91	Correio de Notícias	Ônibus biarticulados	2
1991N574	ago/91	Correio de Notícias	Difusão / meio-ambiente	1
1991N575	out/91	Correio de Notícias	Estações Tubo / acessibilidade	1
1991N432	nov/91	Estado do Paraná	Ligeirinho	1
1991N568	nov/91	Correio de Notícias	Linhas / Ligeirinho	1
1991N032	nov/91	Correio de Notícias	Segurança	1
1991N434	dez/91	Indústria e Comércio	Ligeirinho	1
1992N205	fev/92	Veja	Histórico / evolução	4
1992N578	mar/92	Correio de Notícias	Difusão / propaganda	1
1992N433	mar/92	Gazeta do Povo	Ligeirinho	1
1992N430	mar/92	Jornal do Estado	Ligeirinho	1
1992N243	mar/92	Estado do Paraná	Tarifa social	1
1992N435	abr/92	Gazeta do Povo	Difusão / adoção	1
1992N576	mai/92	Correio de Notícias	Ônibus biarticulados	1

1992N436	mai/92	Indústria e Comércio	Ligeirinho	1
1992N534	mai/92	Via Urbana	Operadores	2
1992N577	mai/92	Correio de Notícias	Ônibus biarticulados	1
1992N391	jun/92	Estado do Paraná	Biarticulados / implantação	1
1992N106	jun/92	Indústria e Comércio	Histórico / evolução	1
1992N034	jun/92	Gazeta do Povo	Inovação	3
1992N572	jun/92	Correio de Notícias	Ligeirinho / Linhas	1
1992N319	jun/92	Gazeta do Povo	Ligeirinho	1
1992N437	jun/92	Indústria e Comércio	Ligeirinho	1
1992N390	jun/92	Gazeta do Povo	Ônibus biarticulados	2
1992N438	jul/92	Gazeta do Povo	Ligeirinho	2
1992N439	jul/92	Tribuna do Paraná	Ligeirinho	1
1992N571	jul/92	Correio de Notícias	Ligeirinho / difusão	1
1992N579	jul/92	Correio de Notícias	Ônibus biarticulados	1
1992N387	jul/92	Gazeta do Povo	Ônibus biarticulados	1
1992N392	jul/92	Tribuna do Paraná	Ônibus biarticulados	1
1992N613	ago/92	Jornal do Brasil	Difusão / Ligeirinho	1
1992N250	ago/92	Estado do Paraná	Bilhetagem / Vale transporte	1
1992N163	set/92	Jornal do Estado	Integração	1
1992N389	set/92	Estado do Paraná	Ônibus biarticulados	2
1992N394	set/92	Gazeta do Povo	Ônibus biarticulados	1
1992N393	set/92	Indústria e Comércio	Ônibus biarticulados	2
1992N397	set/92	Indústria e Comércio	Ônibus biarticulados	2
1992N396	set/92	Jornal do Estado	Ônibus biarticulados	1
1992N395	out/92	Jornal do Estado	Ônibus biarticulados	1
1992N398	out/92	Jornal do Estado	Ônibus biarticulados	1
1992N573	nov/92	Correio de Notícias	Crítica / Estética	1
1992N399	dez/92	Jornal do Estado	Anúncio PMC / Biarticulado	2
1992N388	dez/92	Estado do Paraná	Biarticulados / Estações-tubo	2
1992N440	dez/92	Correio de Notícias	Críticas / Ligeirinho	1
1992N107	dez/92	Jornal do Estado	Difusão / adoção	1
1992N004	dez/92	Correio de Notícias	Modernização	1
1992N386	dez/92	Estado do Paraná	Ônibus biarticulados	2
1992N410	dez/92	Gazeta do Povo	Ônibus biarticulados	4
1992N400	dez/92	Jornal do Estado	Ônibus biarticulados	1
1992N401	dez/92	Jornal do Estado	Ônibus biarticulados	1
1992N402	dez/92	Jornal do Estado	Ônibus biarticulados	2
1993N403	jan/93	Estado do Paraná	Ônibus biarticulados	1
1993N309	jan/93	Jornal do Estado	Ônibus biarticulados	1
1993N055	mar/93	N/A	Desfile	2
1993N127	mar/93	Curitiba Hoje	Difusão / adoção	1
1993N442	abr/93	N/A	Anúncio / Ligeirinho	2
1993N441	abr/93	Gazeta do Povo	Ligeirinho	1
1993N404	abr/93	Indústria e Comércio	Ônibus biarticulados	1
1993N138	mai/93	Gazeta do Povo	Difusão / adoção	1
1993N192	mai/93	Indústria e Comércio	Difusão / adoção	1
1993N041	mai/93	Indústria e Comércio	Inovação	1
1993N132	mai/93	Gazeta do Povo	Integração	1

1993N289	mai/93	Gazeta do Povo	Tecnologia no sistema	1
1993N193	jun/93	Gazeta do Povo	Difusão / adoção	1
1993N244	jul/93	Gazeta do Povo	Anúncio PMC / Tarifa	1
1993N443	jul/93	Estado do Paraná	Ligeirinho	1
1994N444	jul/93	Folha de Londrina	Sistema viário	1
1993N445	ago/93	Estado de São Paulo	Difusão / adoção	1
1993N317	ago/93	Gazeta do Povo	Gratuidade / Auxílio	1
1993N446	nov/93	Estado do Paraná	Ligeirinho	1
1993N405	dez/93	Estado do Paraná	Ônibus biarticulados	1
1994N310	abr/94	Jornal do Estado	Jaime Lerner / Charge	1
1994N043	jun/94	Estado do Paraná	Linhas	1
1994N407	ago/94	Estado do Paraná	Ônibus biarticulados	1
1994N142	set/94	Gazeta do Povo	Histórico / evolução	1
1994N447	nov/94	Gazeta do Povo	Expansão do sistema	1
1995N406	mai/95	Estado do Paraná	Ônibus biarticulados	1
1995N276	ago/95	Diário Popular	Expansão do sistema	4
1995N614	set/95	New York Magazine	Difusão / Adoção	8
1995N580	set/95	Revista Manchete	Ônibus biarticulados	1
1996N158	jan/96	Estado do Paraná	Integração	1
1996N145	jan/96	Folha de Londrina	Integração	1
1996N279	abr/96	Gazeta do Povo	Difusão / adoção	1
1996N581	jun/96	Revista Manchete	Difusão / Habitat	3
1996N583	ago/96	Jornal do Brasil	Difusão / adoção	1
1997N111	fev/97	Estado do Paraná	Histórico / evolução	1
1997N139	jun/97	Correio de Notícias	Difusão / adoção	1
1997N448	jun/97	Jornal do Paraná	Difusão / adoção	2
1997N408	jun/97	Gazeta do Povo	Ônibus biarticulados	1
1997N252	jul/97	Jornal do Estado	Bilhetagem	1
1997N324	ago/97	Folha de Londrina	Inovação / combustível	1
1987N131	set/97	Jornal do Estado	Difusão / adoção	1
1997N291	out/97	Jornal do Estado	Inovação / combustível	1
1997N178	out/97	Gazeta do Povo	Ônibus	1
1997N051	nov/97	Panorama	Comemorativo / histórico	3
1997N116	nov/97	Gazeta do Povo	Inovação / combustível	1
1998N056	jan/98	Transurbs	Histórico / Urbs	16
1998N311	fev/98	Gazeta do Povo	Difusão / adoção	1
1998N312	fev/98	Jornal do Estado	Difusão / adoção	1
1998N037	mar/98	Gazeta do Povo	Inovação	1
1998N044	mar/98	Estado do Paraná	Linhas	1
1998N449	abr/98	Gazeta do Povo	Frota	1
1998N166	abr/98	Jornal do Estado	Ônibus / recursos	1
1998N038	mai/98	Folha do Paraná	Estações Tubo	1
1998N277	mai/98	Gazeta do Povo	Frota	1
1998N160	ago/98	Gazeta do Povo	Crise / redução passageiros	1
1998N275	ago/98	Gazeta do Povo	Expansão do sistema	1
1998N465	ago/98	Indústria e Comércio	Expansão do sistema	2
1998N153	ago/98	Jornal do Estado	Expansão do sistema	1
1998N179	set/98	Gazeta do Povo	Metrô	1

1998N140	set/98	Jornal do Estado	Metrô	1
1998N409	out/98	Jornal do Estado	Ônibus biarticulados	1
1998N128	dez/98	Estado do Paraná	Bilhetagem	1
1998N175	dez/98	N/A	Bilhetagem	1
1999N005	jan/99	Estado do Paraná	Histórico / evolução	1
1999N190	jan/99	Gazeta do Povo	Difusão / adoção	1
1999N164	fev/99	Gazeta do Povo	Expansão do sistema	1
1999N105	mar/99	Estado do Paraná	Bilhetagem	1
1999N201	set/99	Estado do Paraná	Expansão do sistema	1
1999N147	set/99	Gazeta do Povo	Histórico / evolução	1
1999N151	set/99	Jornal do Estado	Histórico / evolução	2
1999N283	out/99	Folha do Paraná	Difusão / adoção	1
1999N450	out/99	Gazeta do Povo	Difusão / adoção	1
1999N168	out/99	Jornal do Estado	Difusão / adoção	1
1999N313	dez/99	Estado do Paraná	Difusão / adoção	1
2000N123	jan/00	Divulgação Paraná	Bilhetagem	1
2000N282	jan/00	Gazeta do Povo	Bilhetagem	1
2000N036	jan/00	Gazeta do Povo	Crítica dos usuários	1
2000N451	mar/00	Estado do Paraná	Difusão / adoção	1
2000N007	abr/00	Estado do Paraná	Acessibilidade	1
2000N186	abr/00	Gazeta do Povo	Ônibus / tecnologia	1
2000N225	mai/00	Gazeta do Povo	Bilhetagem / Legislação	1
2000N287	mai/00	Diário Popular	Estações Tubo	1
2000N290	jun/00	Gazeta do Povo	Expansão do sistema	1
2000N466	jun/00	Gazeta do Povo	Expansão do sistema	1
2000N047	jun/00	Estado do Paraná	Obras	1
2000N288	jul/00	Estado do Paraná	Desenvolvimento local	1
2000N320	jul/00	Gazeta do Povo	Estações Tubo	1
2000N251	ago/00	Gazeta do Povo	Bilhetagem / Vale transporte	1
2000N224	set/00	Gazeta do Povo	Metrô	1
2000N281	out/00	Estado do Paraná	Expansão do sistema	1
2000N314	dez/00	Indústria e Comércio	Difusão / adoção	1
2001N143	jan/01	Gazeta do Povo	Tarifa	1
2001N183	abr/01	Jornal do Estado	Transporte alternativo	1
2001N154	mai/01	Jornal do Estado	Metrô	1
2001N228	jul/01	Gazeta do Povo	Licitação / concessão	1
2001N003	jul/01	Estado do Paraná	Tarifa	1
2001N188	out/01	Estado do Paraná	Difusão / adoção	2
2001N098	out/01	Indústria e Comércio	Difusão / adoção	1
2002N292	jan/02	Indústria e Comércio	Inovação / combustível	1
2002N008	jan/02	Gazeta do Povo	Metrô	1
2002N185	jun/02	Gazeta do Povo	Bilhetagem	1
2002N156	jun/02	Indústria e Comércio	Difusão / adoção	1
2002N220	ago/02	Indústria e Comércio	Difusão / adoção	1
2002N117	ago/02	Estado do Paraná	Saúde / ruídos	1
2003N182	fev/03	Gazeta do Povo	Bilhetagem	1
2003N293	fev/03	Indústria e Comércio	Difusão / adoção	1
2003N165	fev/03	Gazeta do Povo	Inovação / combustível	1

2003N171	fev/03	Gazeta do Povo	Ônibus / recursos	1
2003N011	fev/03	Estado do Paraná	Tarifa	1
2003N125	mai/03	Gazeta do Povo	Obras / Linha verde	1
2003N253	ago/03	Gazeta do Povo	Bilhetagem	1
2003N162	ago/03	Estado do Paraná	Difusão / adoção	1
2003N006	dez/03	Gazeta do Povo	Obras	1
2004N148	fev/04	Indústria e Comércio	Difusão / adoção	1
2004N085	fev/04	Jornal do Estado	Difusão / adoção	1
2004N087	mar/04	Gazeta do Povo	Tarifa	1
2004N096	abr/04	Jornal do Estado	História	1
2004N137	set/04	Jornal do Estado	Ônibus biarticulados	1
2004N274	nov/04	Gazeta do Povo	Alternativas ao Expresso	1
2005N058	jan/05	Jornal do Estado	Tarifa	2
2005N221	set/05	Jornal do Estado	Difusão / adoção	1
2005N092	set/05	Gazeta do Povo	Estações Tubo	1
2005N079	set/05	Jornal do Estado	Tarifa	1
2006N093	jan/06	Jornal do Estado	Tarifa	1
2006N120	fev/06	Gazeta do Povo	Estações Tubo	1
2006N121	fev/06	Correio Paranaense	Legislação	1
2006N135	fev/06	Gazeta do Povo	Legislação	1
2006N202	abr/06	Correio Paranaense	Difusão / adoção	1
2006N280	abr/06	Correio Paranaense	Frota / Emissões	1
2006N029	mai/06	Estado do Paraná	Concessão	1
2006N194	mai/06	Correio Paranaense	Linhas	1
2006N039	mai/06	Indústria e Comércio	Ônibus	1
2006N095	jun/06	Gazeta do Povo	Acessibilidade	1
2006N150	jun/06	Estado do Paraná	Licitação / concessão	1
2006N097	ago/06	Gazeta do Povo	Legislação	1
2006N222	set/06	Indústria e Comércio	Frota / Emissões	1
2006N088	set/06	Correio Paranaense	Legislação	1
2006N094	out/06	Gazeta do Povo	Terminal	1
2006N167	nov/06	Estado do Paraná	Frota	1
2006N080	dez/06	Folha de Londrina	Especial Expresso	1
2006N078	dez/06	Gazeta do Povo	Tarifa / Metrô	1
2007N184	jan/07	Gazeta do Povo	Segurança	1
2007N077	abr/07	Estado do Paraná	Licitação / concessão	1
2007N195	jul/07	Diário Popular	Difusão / adoção	1
2007N173	ago/07	Gazeta do Povo	Licitação / concessão	1
2007N108	out/07	Estado do Paraná	Acessibilidade	1
2007N090	out/07	Gazeta do Povo	Qualidade	1
2008N189	jan/08	Folha de Londrina	Estações Tubo	1
2008N009	fev/08	Gazeta do Povo	Concessão	3
2008N187	abr/08	Diário Popular	Frota	1
2008N141	abr/08	Diário Popular	Tarifa	1
2008N229	jul/08	Correio Paranaense	Inovação / combustível	1
2008N219	jul/08	Diário Popular	Inovação / combustível	1
2008N207	ago/08	Gazeta do Povo	Críticas / crise	1
2008N028	ago/08	Gazeta do Povo	Diversos	1

2008N323	ago/08	Jornal do Estado	Inovação / combustível	1
2008N086	set/08	Gazeta do Povo	Manutenção	1
2009N223	mai/09	Gazeta do Povo	Linhas	1
2009N411	jun/09	Jornal do Estado	Desalinhamento estações	1
2009N076	jun/09	Gazeta do Povo	Integração / Expansão	1
2009N033	jun/09	Gazeta do Povo	Segurança - ônibus	1
2009N010	jun/09	Gazeta do Povo	Subsídio	1
2009N083	jul/09	Gazeta do Povo	Obras / Linha verde	1
2009N084	jul/09	Gazeta do Povo	Obras / Linha verde	1
2009N082	ago/09	Gazeta do Povo	Capacitação	1
2009N176	set/09	Gazeta do Povo	Bilhetagem	1
2009N073	set/09	Gazeta do Povo	Obras / Linha verde	1
2010N072	jan/10	Gazeta do Povo	Obras / Linha verde	1
2010N035	fev/10	Gazeta do Povo	Concessão	1
2010N146	fev/10	Gazeta do Povo	Licitação / concessão	1
2010N075	fev/10	Gazeta do Povo	Obras / Linha verde	1
2010N089	fev/10	Gazeta do Povo	Qualidade	1
2010N231	mar/10	Estado do Paraná	Ligeirão	1
2010N074	mar/10	Gazeta do Povo	Obras / Linha verde	1
2010N012	abr/10	Estado do Paraná	Concessão	1
2010N198	mai/10	Espaço Urbano	Histórico / evolução	1
2010N110	mai/10	Gazeta do Povo	Obras / Linha verde	1
2010N227	jun/10	Gazeta do Povo	Difusão / adoção	1
2010N315	ago/10	Gazeta do Povo	Crítica	1
2011N487	fev/11	Gazeta do Povo	Plano diretor	3
2011N133	mar/11	Gazeta do Povo	Obras / Linha verde	1
2011N159	abr/11	Gazeta do Povo	Legislação	1
2011N420	set/11	Indústria e Comércio	Estações Tubo	1
2011N119	nov/11	Gazeta do Povo	Difusão / adoção	1
2012N130	fev/12	Gazeta do Povo	Inovação / tecnologias	1
2012N196	mai/12	Gazeta do Povo	Ligeirão	1
2012N114	set/12	Gazeta do Povo	Bilhetagem	1
2013N030	mai/13	Gazeta do Povo	Tarifa / Crise	2
2013N081	ago/13	Gazeta do Povo	Operação	1
2013N129	set/13	Gazeta do Povo	Tarifa	1
2014N026	jul/14	Gazeta do Povo	Greve	1
2014N226	out/14	Gazeta do Povo	Expansão do sistema	1
2014N025	dez/14	Gazeta do Povo	Crise	1
2014N024	dez/14	Gazeta do Povo	Custos	1
2015N068	jan/15	Gazeta do Povo	Abandono terminal	1
2015N069	jan/15	Gazeta do Povo	Crise	1
2015N065	jan/15	Gazeta do Povo	Greve	1
2015N067	jan/15	Gazeta do Povo	Greve	1
2015N070	jan/15	Gazeta do Povo	Greve	1
2015N071	jan/15	Gazeta do Povo	Greve	1
2015N045	mar/15	Gazeta do Povo	Crise / Integração	1
2015N013	mar/15	Gazeta do Povo	Greve	1
2015N027	mar/15	Gazeta do Povo	Tarifa	1

2015N066	mar/15	Gazeta do Povo	Tarifa	1
2015N023	mar/15	Gazeta do Povo	Trânsito	1
2015N046	mar/15	Gazeta do Povo	Trânsito	1
2015N414	jul/15	Gazeta do Povo	Gratuidade / Auxílio	1
2015N415	ago/15	Gazeta do Povo	Tecnologia no sistema	1
2015N174	out/15	Gazeta do Povo	Frota	1
2016N063	jun/16	Gazeta do Povo	Crise / passageiros	1
2016N064	jun/16	Jornal do Ônibus	Ônibus / híbrido	1
2016N060	ago/16	Gazeta do Povo	Metrô	1
2016N169	set/16	Gazeta do Povo	Bilhetagem / Legislação	1
2016N061	set/16	Gazeta do Povo	Carro elétrico	1
2016N059	out/16	Gazeta do Povo	Integração	1
2016N062	nov/16	Gazeta do Povo	Integração	1
2016N180	nov/16	Gazeta do Povo	Metrô	1
2017N112	jan/17	Gazeta do Povo	Relação Pref / Volvo	1
2017N018	fev/17	Gazeta do Povo	Bilhetagem	1
2017N022	fev/17	Gazeta do Povo	Integração	1
2017N020	fev/17	Gazeta do Povo	Mudanças	1
2017N017	fev/17	Gazeta do Povo	Tarifa	1
2017N019	fev/17	Gazeta do Povo	Tarifa	1
2017N021	fev/17	Gazeta do Povo	Tarifa	1
2017N177	mar/17	Metro	Qualidade	1
2017N048	abr/17	Gazeta do Povo	Crítica - colunista	1
2017N014	jul/17	Gazeta do Povo	Estações Tubo	3
2017N057	jul/17	Gazeta do Povo	Linhas / Uber	6
2017N016	jul/17	Gazeta do Povo	Projetos	2
2017N015	jul/17	Gazeta do Povo	Segurança	2
2017N001	set/17	Gazeta do Povo	Tarifa	3
2017N002	out/17	Jornal do Ônibus	Integração	1
2018N218	jun/18	Indústria e Comércio	Difusão / adoção	1
2019N486	fev/19	Gazeta do Povo	Histórico / evolução	8
2019N118	mar/19	Jornal do Ônibus	Inovação / combustível	1
2019N109	mai/19	Jornal do Ônibus	Obras / Financiamento	1
2019N230	jul/19	Jornal do Ônibus	Ligeirinho	1
2019N532	out/19	Gazeta do Povo	Estações Tubo	7
2019N531	nov/19	Gazeta do Povo	Alternativas ao Expresso	10
2020N533	jan/20	Gazeta do Povo	Difusão / adoção	8
NAN042	N/A	N/A	Acessibilidade	1
NAN049	N/A	N/A	Fotos	1
NAN040	N/A	N/A	Projetos	1
NAN122	N/A	Estado do Paraná	Tarifa / Crise	1
NAN091	N/A	N/A	VLT	1

APPENDIX D – DOCUMENTS INVENTORY

ID	Date	Type	Source	Description	Pages
017D1942	1942	Master Plan	IPPUC	Plano Agache - mapa das avenidas	28
075D1943	1943	Report	IPPUC	Boletim PMC - Plano Agache	109
020D1965	1965	Laws	PMC	Lei de criação do IPPUC	15
018D1966	1966	Master Plan	IPPUC	Plano Diretor de Curitiba - Anexos	17
019D1966	1966	Master Plan	PMC	Plano Diretor de Curitiba	136
011D1969	1969	Project	IPPUC	Projeto do Metrô	91
029D1973	1973	Report	URBS	Relatório de Atividades URBS	22
095D1974	1974	Advertising	Marcopolo	Propaganda Marcopolo Veneza	1
023D1974	1974	Document	PMC	Divulgação do Expresso	5
091D1974	1974	Interview / audio	Aramis Millarch	Entrevista com Jaime Lerner feita por Aramis Millarch ~ em 1974	10
070D1975	1975	Document	IPPUC	Do bonde de mula ao onibus expresso	47
085D1977	1977	Report	IPPUC	Relatório de Viabilidade Banco Mundial	143
086D1979	1979	Project	IPPUC/Sofretu	Anteprojeto de Implantação de Bonde em Via Exclusiva v1	155
087D1979	1979	Project	IPPUC/Sofretu	Anteprojeto de Implantação de Bonde em Via Exclusiva v2	160
024D1981	1981	Document	PMC	Evolução dos Custos do Transporte	13
089D1981	1981	Project	IPPUC/Copel	Estudo preliminar para eletrificação do sistema v1	110
090D1981	1981	Project	IPPUC/Copel	Estudo preliminar para eletrificação do sistema v2	120
079D1984	1984	Document	IPPUC	Soluções alternativas aos problemas urbanos	47
082D1984	1984	Flyer	ANTP	Flyer Congresso Nacional de Transportes Públicos	4
053D1984	1984	Magazine	ANTP	Revista dos Transportes Públicos	66
083D1984	1984	Report	ANTP	Anais e relatórios do Congresso Nacional	171
084D1984	1984	Report	ANTP	Relatórios do Congresso Nacional de Transportes Públicos	360
078D1985	1985	Document	IPPUC	Plano de Desenvolvimento Urbano 1983-1985	193
080D1985	1985	Document	IPPUC	Soluções alternativas aos problemas urbanos	29
010D1985	1985	Magazine	IPPUC	Comemorativo, 20 anos de IPPUC	18
035D1989	1989	Testemonials	IPPUC	Memória da Curitiba Urbana v1	37
036D1989	1989	Testemonials	IPPUC	Memória da Curitiba Urbana v2	77
059D1990	1990	Collection	PMC	Jornal dos Jornais Internacional 1974-1990	21
037D1990	1990	Testemonials	IPPUC	Memória da Curitiba Urbana v3	116
038D1990	1990	Testemonials	IPPUC	Memória da Curitiba Urbana v4	123
039D1990	1990	Testemonials	IPPUC	Memória da Curitiba Urbana v5	118
060D1991	1991	Collection	PMC	Jornal dos Jornais Internacional 1991	60
071D1991	1991	Project	IPPUC	Bonde Moderno: caminho do futuro	25

040D1991	1991	Testemonials	IPPUC	Memória da Curitiba Urbana v6	255
041D1991	1991	Testemonials	IPPUC	Memória da Curitiba Urbana v7	320
061D1992	1992	Collection	PMC	Jornal dos Jornais Internacional 1992	102
031D1992	1992	Document	URBS	Divulgação RIT (inglês)	8
025D1992	1992	Project	IPPUC	Projeto de implantação do Biarticulado	13
042D1992	1992	Testemonials	IPPUC	Memória da Curitiba Urbana v8	97
062D1993	1993	Collection	PMC	Jornal dos Jornais Internacional 1993	120
001D1993	1993	Project	PMC	Projeto do sistema de massa de Curitiba	405
063D1994	1994	Collection	PMC	Jornal dos Jornais Internacional 1994	52
013D1994	1994	Document	URBS	Impacto ambiental e redução da poluição	14
064D1995	1995	Collection	PMC	Jornal dos Jornais Internacional 1995	151
065D1996	1996	Collection	PMC	Jornal dos Jornais Internacional 1995-1996	214
066D1996	1996	Collection	PMC	Jornal dos Jornais Internacional 1996	149
008D1996	1996	Flyer	URBS	Flyer Habitat 2 - Istambul	2
015D1996	1996	Prototype	IPPUC	Maquete de Papel do Biarticulado	5
067D1997	1997	Collection	PMC	Jornal dos Jornais Internacional 1997	72
077D1997	1997	Maps	IPPUC	Mapa do Plano Diretor de 1966	1
068D1998	1998	Collection	PMC	Jornal dos Jornais Internacional 1998	47
004D1998	1998	Project	IPPUC	BR Cidade - A nova cidade de Curitiba	54
033D1998	1998	Report	URBS	História do Sistema	20
096D1999	1999	Advertising	PMC	Linhão do Emprego – Circular Sul	1
081D1999	1999	Book	Marcopolo	Livro Marcopolo 50 anos	112
069D1999	1999	Collection	PMC	Jornal dos Jornais Internacional 1999	135
007D1999	1999	Project	IPPUC	Eixo Metropolitano - proposta Cássio	77
027D1999	1999	Project	IPPUC	Sistema de Transporte de Alta Capacidade	38
048D2000	2000	Laws	PMC	Zoneamento, Uso e Ocupação do Solo	111
026D2000	2000	Project	IPPUC	Revivendo a Rua XV	11
098D2001	2001	Report	GAO	Bus Rapid Transit shows promise	61
043D2003	2003	Book	BPP	Jaime - Acupuntura Urbana	10
014D2003	2003	Project	IPPUC	Projeto do Linhão do Turismo	38
072D2003	2003	Report	TRB	Volume 1: Case Studies in Bus Rapid Transit	62
073D2003	2003	Report	TRB	Bus Rapid Transit Volume 2: Implementation Guidelines	233
002D2004	2004	Book	FCC	A História do Sistema de Transporte de Curitiba 1887-2000	217
050D2004	2004	Master Plan	IPPUC	Plano Diretor de Curitiba - Revisão	89
003D2008	2008	Book	Alan Cannell	Bus Rapid Transit in Latin America	345
021D2008	2008	Project	PMC	Plano de Mobilidade Urbana e Transporte Integrado	54
032D2009	2009	Magazine	URBS	Revista URBS	22
022D2009	2009	Master Plan	IPPUC	Plano Diretor Multimodal	61
054D2009	2009	Report	Jaime Lerner	Avaliação Comparativa das Modalidades de Transporte Público Urbano	92

028D2010	2010	Project	IPPUC	Terminais de Integração	21
057D2010	2010	Report	NTU	Conceitos e Elementos de Custo BRT	72
034D2010	2010	Report	SENAI	Curitiba 2030	100
075D2011	2011	Master Plan	IPPUC	Mapa representando o Plano Agache	1
097D2011	2011	Report	ITDP	Recapturing Global Leadership on BRT	80
030D2011	2011	Report	NTU	Estudos de BRT no Brasil	134
016D2012	2012	Project	IPPUC	Operação consorciada Linha Verde	59
058D2012	2012	Report	NTU	Estudos de BRT no Brasil v2	146
009D2014	2014	Book	Alan Cannell	High-Capacity BRT in Latin America	34
044D2014	2014	Book	BPP	Jaime - Quem cria	4
052D2014	2014	Project	IPPUC	Viabilidade da Área Calma	69
055D2014	2014	Report	ITDP	Avaliação do Padrão de BRT	58
046D2015	2015	Project	Assad	Atualização das Estações-Tubo - Abrão Assad	28
006D2016	2016	Book	BPP	Depoimento do Dely - Fazimento	349
049D2016	2016	Project	URBS	Sistema Integrado de Monitoramento	108
056D2016	2016	Report	Gov. Federal	Caderno Técnico para Sistemas de Prioridade de ônibus	178
045D2017	2017	Presentation	URBS	Transport Axes BRT System	24
076D2018	2018	Map	URBS	Mapa do Sistema de Transporte Coletivo	1
094D2018	2018	Map	IPPUC	Mapa do Transporte Coletivo – Regional Matriz	1
005D2019	2019	Field data	Field	Croquis Ceneviva	3
088D2019	2019	Project	Gazeta/IPPUC	Versão Projeto do Metrô de 1969 feito pela Gazeta do Povo	31
093D2019	2019	Map	IPPUC	Mapa Arruamento – Regional Matriz	1
092D2020	2020	Ranking	PMI	Curitiba BRT - Most influential projects	2
012DNAN	N/A	Flyer	IPPUC	Flyer Bilingue Sistema de Transporte	4
051DNAN	N/A	Laws	PMC	Zoneamento, Uso e Ocupação do Solo	543
047DNAN	N/A	Presentation	IPPUC	Proposta do Metrô Curitibano	43

APPENDIX E – CURITIBA'S MASS TRANSPORT SYSTEM CHRONOLOGY

Year	Event	Actors
1955	Regulation of public transportation in Curitiba	Mayor Ney Braga, 13 bus operation companies
1965	Creation of the IPPUC as APPUC - a team assigned to discuss and implement the city's new Master Plan (Serete); The new face of the city (linear vs radial) is born in this plan.	Mayor Ivo Arzua, Jorge Wilhem, Jaime Lerner
1968	Preliminary Plan of Mass Transportation	IPPUC
1972	The IPPUC starts the implementation of the Express Buses that were planned in the 1968/1969 plans; Construction work in the Trinary system.	IPPUC, Jaime Lerner, Rafael Dely
1974	The Expresso Bus system has its inauguration - North/South lines	IPPUC, Jaime Lerner, Rafael Dely, Marcopolo, Cummins
1975	Increase in the oil crisis lead to projects towards the electrification of the system and return of the trolleys	Saul Raiz, Lubomir Ficinski
1976	Volvo donates two articulated buses (imported from Sweden) to test them in the Expresso	Volvo, Lubomir Ficinski
1977	Implementation of the new line of the Expresso - Boqueirão	Saul Raiz, Lubomir Ficinski
1977	Volvo announces that construction of the plant in the Industrial City of Curitiba	Volvo, Tage Karlsson
1978	Curitiba announces the implementation of automatic ticketing (the first city in Brazil to test it)	Saul Raiz, Lubomir Ficinski
1978	Implementation of the new line of the Expresso – West	Saul Raiz, Lubomir Ficinski
1978	Volvo starts its operation in Brazil - Decides to install its plan in Curitiba due to the potential market for heavy trucks	Volvo
1979	The Volvo plant delivers to the system the first lot of chassis and engines produced in Brazil	Volvo, IPPUC
1979	Physical integration in closed areas of bus terminals (little pigpens) with the creation of the Interdistrict lines	Jaime Lerner, Carlos Ceneviva
1979	The automatic ticketing is implemented in the Boqueirão line of the Expresso	Jaime Lerner, Carlos Ceneviva
1980	Implementation of the social fare (longer trips are subsided by shorter ones). Every passenger pays the same price, no matter the distance	Jaime Lerner, Carlos Ceneviva

1981	The Integrated Network of Transportation (ITN) is fully implemented - total closure of the bus terminals (ending the pigpen system), allowing full integration of the system paying a single ticket.	Jaime Lerner, Cássio Taniguchi
1984	Curitiba hosts the National Meeting of Transportation	ANTP
1986	URBS is now the planning, managing, and operation company of the transportation system (functions formerly attributed to IPPUC)	URBS, Roberto Requião
1987	Change in the remuneration system - public revenue, payment by kilometer instead of payment by passenger	URBS, Garrone Reck, Roberto Requião
1987	Change in the regulatory system implemented in 1955 - now URBS is the only concessionary of the system and the bus operators became the permissionaries.	URBS, Roberto Requião
1988	Public fleet - the municipality now owns 88 articulated buses in the Expresso system	URBS, Roberto Requião
1988	New ticketing system (metallic coins)	URBS, Roberto Requião
1991	Introduction of the tube stations (level-boarding and prepayment of the fare) in the system	URBS, Jaime Lerner, Carlos Ceneviva, Abrão Assad
1991	Implementation of the Direct Line (Speedy bus)	URBS, Jaime Lerner, Carlos Ceneviva, Volvo, Marcopolo
1992	Implementation of the bi-articulated buses with boarding in tube station (metronization) in the Boqueirão corridor	URBS, Jaime Lerner, Carlos Ceneviva, Volvo, Marcopolo, Ciferal
1992	The Direct Line and tube-stations make their appearance in New York	NYC Metropolitan Transit Authority, URBS, Jaime Lerner, Carlos Ceneviva
1995	Renovation of the electronic traffic signal priority system in the corridors	URBS, Euclides Rovani, Rafael Greca
1995	Extension of the bi-articulated buses in other corridors	URBS, Carlos Ceneviva, Rafael Greca, Volvo, Marcopolo
1996	The bi-articulated and tube-stations are taken to Istanbul for the UN Habitat II conference	UN, URBS, Carlos Ceneviva
1996	Curitiba hosts the Latin-American Congress on Urban and Public Transportation	ANTP, URBS, PMC
1999	Implementation of the new line of the Expresso - South Circular	URBS, Cássio Taniguchi
1999	FTA commitive visits Curitiba	FTA, URBS, PCM
2000	Bogotá starts the implementation of the major BRT system project derived from the innovations developed in Curitiba	Alberto Peñaloza, Transmilenio