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THE RELATIONSHIP BETWEEN SOCIAL INNOVATION AND ACTIVE MOBILITY PUBLIC SERVICES

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ABSTRACT

This article aims to discuss the relationship between social innovation and public services on active mobility. Two active mobility initiatives are considered in the city of São Paulo, and analyzed based on 11 variables that characterize social innovation. Through the mapping of recent Brazilian regulatory frameworks for active mobility and a low-carbon economy, we can propose the following relationship: the more local (municipal) the public policy, the greater its social influence and participation. However, despite the advances indicated by both experiences of active mobility analyzed (highlighting the role of organized civil society), and by the progress in the regulatory framework, until now innovative practices in the local context have been restricted to the treatment of pedestrian spaces. Therefore, there exists a great potential for the continued introduction of innovations in the improvement and scale of public services for pedestrian mobility, following the paradigm of sustainable urban mobility, and based on social participation.

INTRODUCTION

Throughout the world's megacities, despite discussions and attestations about urban mobility's impacts on the environment and health, dependence on fossil fuels continues to grow; this represents a substantial risk for the

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future of urban transport, as well as in terms of energy security. In the case of megacities in developing countries, the central issue to be addressed is sustainable urban expansion, which requires measures to manage metropolitan development.¹ One important step in this direction is the promotion of sustainable transport. Rapid and exponential population growth, coupled with the lack of urban planning, has had negative consequences, particularly in urban mobility. In the context of megacities, it is becoming ever more necessary to possess a transport system developed with user accessibility and connecting active mobility to collective public transport.

This article proposes the incorporation of a broader innovation approach for exploring the potential of innovation in services that address sustainable urban mobility issues, including strategies such as social inclusion, and social innovation itself. This topic is a major driver of innovation and confirms that the impacts, far beyond the traditional concept of competitiveness, also include environmental and social problems.² It is a complex, multiform, systemic and often conflicting issue,³ which requires different actors interacting at different levels of governance to meet the needs of society.⁴

Authors have shown that the challenges are even greater within contexts of developing and emerging economies, in a situation substantially marked by a bias towards technological innovation.⁵ In emerging economies, public services demand innovation not only in terms of efficiency gains, but also in terms of transparency and responsiveness to their users' needs.⁶

1. See Pengjun Zhao, *Sustainable Urban Expansion and Transportation in a Growing Megacity: Consequences of Urban Sprawl for Mobility on the Urban Fringe of Beijing*, 34 HABITAT INT'L 236 (2010).

2. See, e.g., Metka Stare, *Seizing the Opportunities of Service Innovation: Policy Brief No. 7*, in INCLUSIVE INNOVATION AND SERVICE INNOVATION, 55 (Werner Wobbe, ed., Luxembourg: Publications Office of the European Union, 2013); Silvia S. Cruz, Sonia Paulino & Delhi Paiva, *Verification of Outcomes from Carbon Market Under the Clean Development Mechanism (CDM) Projects in Landfills*, 142 J. OF CLEANER PRODUCTION 145 (2017).

3. See Faridah Djellal & Faïz Gallouj, *How Public-Private Innovation Networks in Services (ServPPINs) Differ from Other Innovation Networks: What Lessons for Theory?*, in PUBLIC-PRIVATE INNOVATION NETWORKS IN SERVICES 21-58 (Faïz Gallouj, Luis Rubalcaba and Paul Windrum eds., 2013).

4. See Anita Kon, *A Inovação nos Serviços como Instrumento para a Inovação Social: uma Visão Integrativa*, 38 BRAZ. J. POL. ECON. 584 (2018).

5. Stare, *supra* note 2; see Silvia Cruz, Faiz Gallouj & Sonia Paulino, *Innovation in Brazilian Landfills: a ServPPIN Perspective*, 2014 ECON. AND POL'Y OF ENERGY AND ENV'T 79 (2015).

6. See Cruz, *supra* note 2; see e.g. Piere Mohnen & Metka Stare, *The Notion of Inclusive Innovation: Policy Brief No. 15*, in INCLUSIVE INNOVATION AND SERVICE INNOVATION, 11 (Werner Wobbe, ed., Luxembourg: Publications Office of the European Union, 2013); Silvia Cruz & Sonia Paulino, *Analysis of Access to Clean Development*

Considering the product (service) as a social construct that involves the views of different actors,⁷ and based on the definition of innovation in services understood as a multi-agent activity⁸ stakeholder participation becomes essential.⁹ In this manner, it is emphasized the collective preferences of citizenship, with a broader view of the citizen as not only a recipient of public services, but also acting in the production, control and planning of these activities. The authors emphasize that an active dialogue is necessary to negotiate and mediate services according to the different preferences of citizens.

As different types of actors are involved in the innovation process, provision of services in a multi-agent configuration allows the development of complementarities and synergies among the different agents. Each possesses their own specific objectives and competences.¹⁰

One of the factors that promote interest in analyzing innovation in public services is the recognition of the important role played by public sector organizations in the innovation process. Public organizations, therefore, are no longer restricted to the role of a mere supporter of the innovation process. The public sector is also a system of services in which innovations may improve the performance of these activities, and ultimately, may affect citizen's quality of life. Simultaneously, a number of other reasons distinguish the public sector, since it influences the daily lives of citizens in many ways.

The multi-faceted and heterogeneous nature of the public sector is in part a result of the multiple interfaces which characterize public organizations: 1) an interface with the private sector; 2) an interface between the public sector and citizens; and 3) internal interfaces within the public sector (between

Mechanism Landfill Projects Through a Multi-Agent Model, 4 INT'L J. OF ENVTL. SCI. AND DEV. 268 (2013).

7. Jean Gadrey, *The Characterization of Goods and Services: An Alternative Approach*, REV. OF INCOME AND WEALTH, Ser. 46 No. 3, Sept. 2000, at 369, 369-87.

8. Pierre Labarthe, Faïz Gallouj & Faridah Djellal, *Effects of Institutions on the Integration of End-Users' Knowledge in ServPPINs: Lessons from two case studies in agro-environmental knowledge-intensive services*, in PUBLIC-PRIVATE INNOVATION NETWORKS IN SERVICES 303, 303-325 (Faïz Gallouj, Luis Rubalcaba & Paul Windrum eds., Edward Elgar Publ'g 2013).

9. David Banister, *The Sustainable Mobility Paradigm*, 15 TRANSPORT POL'Y, 73 (2008).

10. See Paul Windrum & Manuel García-Goñi, *A Neo-Schumpeterian Model of Health Services Innovation*, 37 RES. POL'Y 649, 649-72 (2008); Paul Windrum et al., *The Co-Creation of Multi-Agent Social Innovations*, 19 EUR. J. OF INNOVATION MGMT, 150, 150-66 (2016); BENOÎT DESMARCHELIER, FARIDAH DJELLAL & FAÏZ GALLOWJ, *SERVICES IN INNOVATION NETWORKS AND INNOVATION NETWORKS IN SERVICES: FROM TRADITIONAL INNOVATION NETWORKS (TINS) TO PUBLIC SERVICE INNOVATION NETWORKS (PSINS)* (2018).

government levels and between different areas of activity).¹¹ We emphasize that although there is a range of ways to produce a public service, the public sector, as responsible for the provision of said service, must ensure that this production occurs in an appropriate manner; the State should assume the regulatory, inspection, incentive and planning role.

In the field of service studies, there are advances in understanding the specificities of public services and the socioeconomic contexts in which they exist. The literature on innovation in public services shows the most evident inclusion of non-technological forms of innovation.¹² Service innovation often dialogues with social innovation, which has been used as a denominator for the different types of collective actions and social transformations that would lead us from a “top down” economy and society to a more participatory and “bottom up” society.¹³

A brief definition of social innovation points to innovations defined by their (social) goals to improve the wellbeing of individuals or communities. The occurrence of social innovation requires the participation of third sector organizations, groups or social movements ensuring that society is the beneficiary by appropriating the results of innovation. Increased involvement of the third sector, “and nonprofit organizations in general – is also recognized as a ‘social’ innovation per se.”¹⁴

Social innovation differs from traditional innovation not only in its nature, but also in its modes of production and in its stakeholders. Another fundamental characteristic of social innovation is its local, or popular, nature, the essential participation of users in its emergence and implementation, and its relation with sustainability (Figure 1).¹⁵

11. MARKUS M. BUGGE ET AL., *THE PUBLIC SECTOR IN INNOVATION SYSTEMS, PROJECT – MEASURING PUBLIC INNOVATION IN THE NORDIC COUNTRIES: TOWARD A COMMON STATISTICAL APPROACH* (2010).

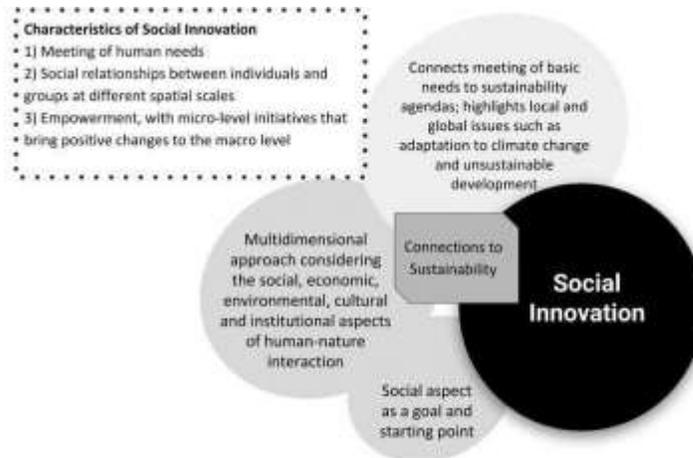
12. Windrum et al., *supra* note 12; DESMARCHELIER ET AL., *supra* note 13.

13. See Gordon Shockley, *The International Handbook on Social Innovation: Collective Action, Social Learning and Transdisciplinary Research*, 55 J. REG’L SCI. 152, 152-53 (2015) (reviewing *THE INTERNATIONAL HANDBOOK ON SOCIAL INNOVATION: COLLECTIVE ACTION, SOCIAL LEARNING AND TRANSDISCIPLINARY RESEARCH* (Frank Moulaert et al. eds., 2013)).

14. Flavia Martinelli, *Social Innovation or Social Exclusion? Innovating Social Services in the Context of a Retrenching Welfare State*, in *CHALLENGE SOCIAL INNOVATION* 169, 173 (Hans-Werner Franz, Josef Hochgerner, & Jürgen Howald eds., 2012).

15. See Faridah Djellal, Faïz Gallouj & Ian Miles, *Two Decades of Research on Innovation in Services: Which Place for Public Services?*, *STRUCTURAL CHANGE AND ECON. DYNAMICS*, Dec. 2013, at 99, 102; see Kon, *supra* note 4, at 603.

Figure 1: Characteristics of social innovation and its relations with sustainability.



Regarding urban mobility, we identify a set of services and modes of transport of both people and cargo, as well as the interactions between these displacements and the urban environment. In other words, the term ‘urban mobility’ has overlapped the term ‘transport,’ as the broadest definition, encompassing, in addition to transport systems, the access and provision of goods and services in the city.¹⁶

We can define active transport as any form of human transport, such as walking, cycling, wheelchairs, use of crutches; in short, all the movements made autonomously by citizens, even with the use of auxiliary devices.¹⁷ Therefore, it plays an important role in the urban context to promote social inclusion and equitable urban development; i.e. it is an important part of sustainable urban mobility.

16. Alexandre de Ávila Gomide & Ernesto Pereira Galindo, *A Mobilidade Urbana: Uma Agenda Inconclusa ou o Retorno Daquilo Que Não Foi*, 27 ESTUDOS AVANÇADOS, no. 79, 2013, at 27, 33; Adriana Silva Barbosa, *Mobilidade Urbana Para Pessoas Com Deficiência No Brasil: Um Estudo Em Blogs*, 8 REVISTA BRASILEIRA DE GESTÃO URBANA 142, 143 (2016).

17. See MINISTÉRIO DAS CIDADES, PLANMOB: CADERNO DE REFERÊNCIA PARA ELABORAÇÃO DE PLANO DE MOBILIDADE URBANA 88 (2017), <https://iema-site-staging.s3.amazonaws.com/planmob.pdf>.

Despite the importance of walking and cycling in Brazil and other developing countries, infrastructure and policies related to non-motorized transport have suffered neglect in the formulation of public policies. Decision makers still consider active mobility as a sign of delay and inconsistent with their “goals and aspirations for economic growth and competitiveness.”¹⁸

Services based on the integration of active mobility and public transport depend on certain conditions involving the travel environment for pedestrians and cyclists, which can be better understood from (a) a public service innovation approach in a multi-agent configuration; and (b) by the concept of social innovation, since the cases studied in this article suggest innovations defined by social objectives to improve the community’s wellbeing, based on the improvement of public services for active mobility, and occur with the participation of third sector organizations.

The recent regulatory framework prioritizes active mobility in the city of São Paulo, in for example, Decree no. 56,834/2015, Law no. 16,547/2016, Law no. 16,673/2017, Decree no. 57,889/2017, Law no. 16,885/2018, and Decree no. 58,845/2019. In order to achieve this, civil society has been playing a relevant role, exercising political influence and activism. In a formal instance of participation, within the Municipal Council of Transport and Traffic, the respective thematic chambers of bicycle and pedestrian mobility it helped create in February and December 2015 stand as an example of this. Thematic chambers are presented in Decree n° 54.058 / 2013, Art.10: “Thematic or regional commissions may be constituted aiming to improve the work of the Municipal Council of Transport and Traffic, composed with the attributions defined by each chamber Internal Regulation.” In general, the aim of this space is to promote social participation through dialogue between citizens and representatives of the municipal government. The meetings between chamber members and city hall technicians occur monthly, bimonthly with the municipal secretary of Transport, and every six months with the city mayor. There are no specific regulations for the composition of members, agendas, as well as formats of meetings. Each thematic chamber, based on the decision of its members, jointly decides its operation and topics to be addressed.

However, when analyzing the legal framework, we note that there is a chasm between laws and practices; in theory, the priority to pedestrian mobility is always considered (in the laws of active mobility and in the low carbon economy as well). However, the practical results are negligible of qualifying the environment and infrastructure for pedestrian commuting and connectivity with collective public transport.

18. Dorina Pojani & Dominic Stead, *Policy Design for Sustainable Urban Transport in the Global South*, 1 POLICY DESIGN AND PRACTICE 90, 94 (2018).

Given the above, this article aims to discuss the relationship between social innovation and active mobility public services, based on two cases – Reduced Speed Zones and Complete Streets – in the city of São Paulo. These 11 analysis variables are used: associations/collectives /activist groups; actions to highlight social needs; third sector interaction with the public sector; expertise in identifying the intervention area; establishment of an evidence base on the effectiveness of techniques used in the service; an evidence base created by the public sector; support from public policies for the diffusion of innovation; government bodies that support the provision of services; solutions to respond to social needs; improvement of environmental quality; and social impact.

We propose that the experiences studied may exist as opportunities for social innovation connected to the introduction of public services aimed at pedestrian mobility. After the introduction, Section 2 shows the methodology. Section 3 presents the results highlighting the regulatory framework on active mobility and low carbon economy, at the federal, state and municipal levels; and the opportunities for social innovation in relation to the introduction of public services for active mobility. In Section 4, the conclusion.

2. METHODOLOGY

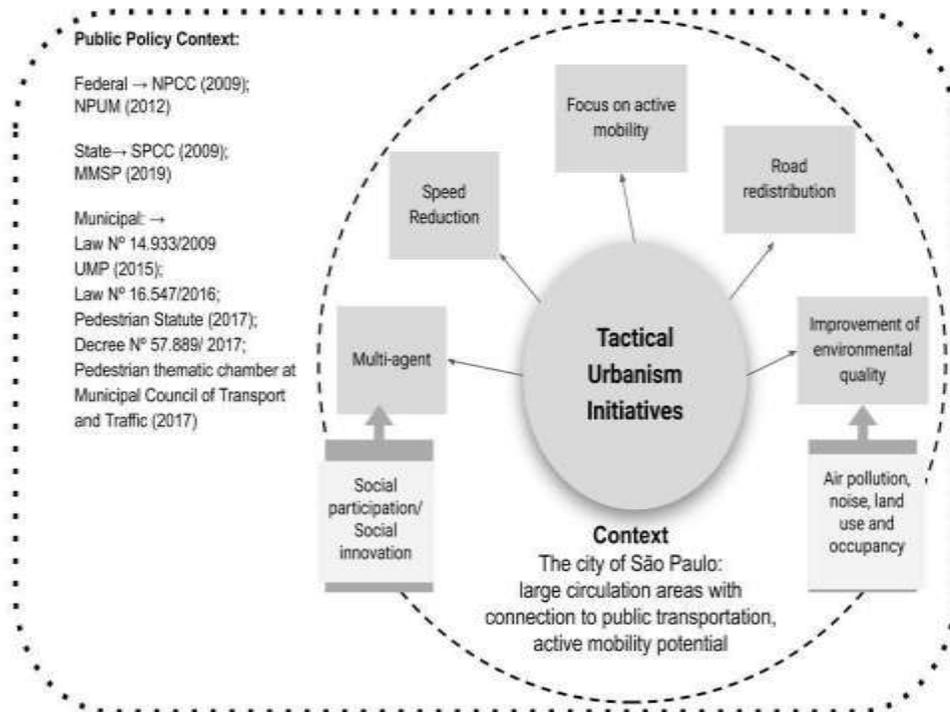
Initially, we mapped the federal, state and municipal regulatory framework on active mobility and the low carbon economy (focusing on aspects related to transport). For the empirical context, the research methodology uses the geographic-temporal approach focused on São Paulo and the period considered for data collection is 2015 until September 2019. In 2015, the São Paulo Urban Mobility Plan was instituted, which established the characteristics of the pedestrian circulation network, necessary infrastructure, specific targets for pedestrians and for accessibility, and integration with other modes of transport.

The concentration of initiatives studied in the São Paulo is justified, as it is one of Brazil's megacities, with great challenges for urban mobility; and as occurs in other aspects, São Paulo was also a pioneer in the use of tactical urbanism in the country, and later, the technique was disseminated to some other cities. Tactical urbanism uses low-cost temporary materials in order to test places for different uses; subsequently, these locations may go on to receive permanent intervention. These short-term and low cost interventions aim to promote grassroots restructuring, in a participatory approach, towards the re-appropriation of urban spaces by their own users, in line also with the broad view of social innovation, which extends potential forms of participation to specific actors. Finally, it is one of the cities selected for the Bloomberg Philanthropies Global Road Safety Initiative (Bloomberg

Initiative), which aims to reduce injuries and fatalities resulting from collisions throughout the world. The development of Reduced Speed Zones and Complete Streets are part of the program. The Bloomberg program was renewed for the 2020-2025 period and São Paulo continues to be one of the cities contemplated by the initiative.

The selection of active mobility cases takes into account the following criteria: implemented in the city of São Paulo; in areas of high pedestrian circulation; connection with collective public transport; and the application of tactical urbanism techniques (Figure 2).

Figure 2: Selected cases.



From the criteria adopted, we selected the following cases: a Reduced Speed Zone (São Miguel Paulista and Santana); and a Complete Street (Joel Carlos Borges) (Table 1).

Table 1: Selected cases.

| Case | Historical | Urban Mobility Services |
|---|--|--|
| Santana Reduced Speed Zone | Year of implementation: 2014 Temporary intervention: 2017 Permanent intervention: 2018 | A metro station and a bus terminal. In total, there are 87 bus lines running on almost every surrounding street. There are also three sections of cycle paths. |
| São Miguel Paulista Reduced Speed Zone | Year of implementation: 2015 Temporary intervention: 2016 Permanent intervention: has not occurred | A train station; more than 50 municipal bus lines pass in the surroundings. |
| Joel Carlos Borges Complete Street | Year of implementation, temporary and permanent interventions: 2017 | A train station; municipal bus lines pass through the surroundings. |

The secondary data sources used are the CET database of Reduced Speed Zones and the Life Protection program; diagnoses and reports of Impact Evaluation Studies and reports.¹⁹ Essentially, the reports on interventions

19. See Cidade Ativa, DIAGNÓSTICO ÁREAS 40: SÃO MIGUEL PAULISTA, <https://cidadeativa.org/iniciativa/leituras-urbanas/area-40-sao-miguel-paulista/> (last visited Oct. 4, 2020); FUNDAÇÃO GETÚLIO VARGAS [FGV], RELATÓRIO DE DESENHO DE PESQUISA PARA AVALIAÇÃO DE IMPACTO DO PROJETO DE REQUALIFICAÇÃO URBANA E SEGURANÇA VIÁRIA DE SÃO MIGUEL PAULISTA NA POLUIÇÃO DO AR E NA SAÚDE (2017); FUNDAÇÃO GETÚLIO VARGAS [FGV], RELATÓRIO DE LINHA DE BASE DA AVALIAÇÃO DE IMPACTO DO PROJETO DE REQUALIFICAÇÃO URBANA E SEGURANÇA VIÁRIA DE SÃO MIGUEL PAULISTA (2017); Rafaela Marques, DESENHO URBANO E SEGURANÇA VIÁRIA: REQUALIFICAÇÃO DE ÁREAS DE BAIXA VELOCIDADE EM SÃO MIGUEL PAULISTA, INSTITUTO DE POLÍTICAS DE TRANSPORTE & DESENVOLVIMENTO [ITDP] (Feb. 15, 2016), <https://itdpbrasil.org/area40saomiguel paulista>; ITDP ET AL., INTERVENÇÃO URBANA TEMPORÁRIA (RE)PENSANDO A RUA EM SANTANA RELATÓRIO DE ATIVIDADE (2018),

provide information about workshops, engagement with stakeholders, post-intervention impact evaluations, intervention design, and materials used (in-event, temporary and permanent actions). For the primary data collection, eight agents completed structured forms: representatives of civil society, startups, universities participating in impact evaluation diagnostics, and the public sector (Secretariat of Urban Mobility).

Finally, we used 11 variables to characterize the social innovation, in the analysis of social innovation opportunities linked to public services for pedestrian mobility (Figure 3):

Figure. 3: Analysis variables

| | |
|-----|---|
| 1. | <i>Associations / collectives / activist groups</i> |
| 2. | <i>Actions to highlight social needs</i> |
| 3. | <i>Third sector interaction with the public sector</i> |
| 4. | <i>Expertise in identifying the intervention area</i> |
| 5. | <i>Establishment of an evidence base on the effectiveness of the techniques used in the service</i> |
| 6. | <i>Evidence base created by the public sector</i> |
| 7. | <i>Support from public policies for the diffusion of innovation</i> |
| 8. | <i>Government bodies that support the provision of services</i> |
| 9. | <i>Solution to respond to social needs</i> |
| 10. | <i>Improvement of environmental quality</i> |
| 11. | <i>Social Impact</i> |

For each variable, it is our intention to identify the following:

- 1) The protagonism of civil society, related to the cases studied.
- 2) Methods, tactics and tools used to gather information from the

communities involved.

- 3) The means of interaction with the public sector.
- 4) Forms of participation in the elaboration of processes and procedures.
- 5) Participatory methodologies for disclosing and validating techniques.
- 6) Methodologies created by the public sector for the disclosure and validation of said techniques.
- 7) Public policies that are related to the cases' studied contexts and that, in part, have originated because of the context.
- 8) Public bodies related to the projects, highlighting their interdisciplinarity and intersectionality.
- 9) Local solutions, aimed at the population's wellbeing, resulting from the joint process of public sector interaction and civil society participation.
- 10) Aspects related to air and noise pollution.
- 11) Developments achieved, measured by research methods and the impact evaluation.

3. RESULTS

The section is organized as (3.1) the insertion of active mobility into the regulatory framework, highlighting and analyzing the recent legislation evolution. Then (3.2) we present the cases, identifying opportunities for social innovation in services for active mobility, linking a timeline for the initiatives with the regulatory framework.

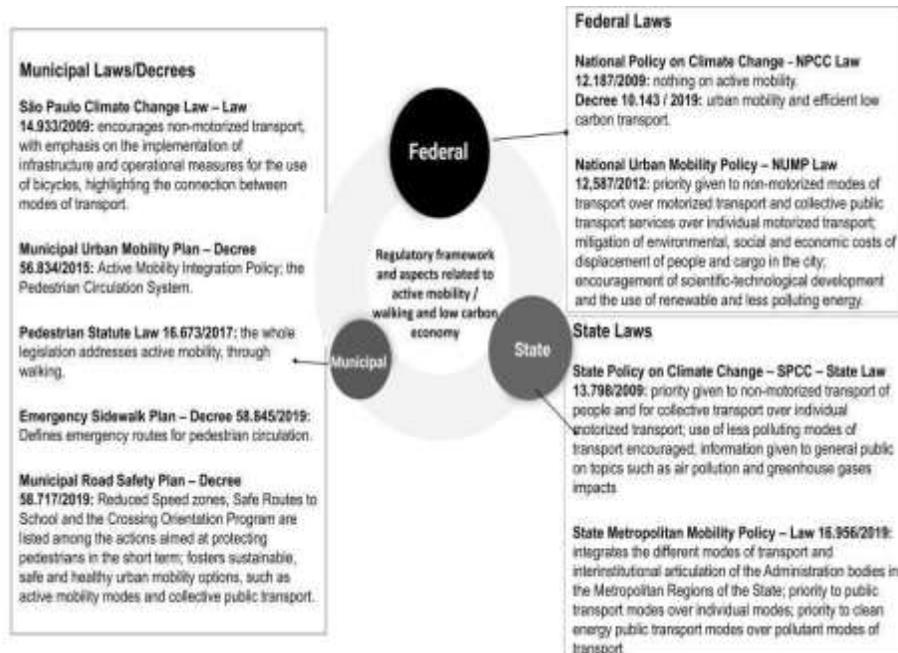
3.1 Active mobility in the regulatory framework

The regulatory framework for climate change is related to urban mobility, since, according to the emissions inventory of the State of São Paulo,²⁰ the transport sub sector was responsible for 48% of emissions in the energy sector and 27% of the State's total emissions in 2005. The road transport is responsible for almost 90% of emissions.²¹ Therefore, analyzing how active mobility is addressed in climate change policies is essential to achieve both environmental and emission reduction, and social, economic, land use and occupation goals. Mapping the recent regulatory framework then, which addresses active and low-carbon mobility, at the federal, state and municipal levels, the scenario appears in Figure 4.

20. COMPANHIA AMBIENTAL DO ESTADO DE SÃO PAULO [CESTESB], EMISSÕES NO SETOR DE ENERGIA: SUBSETOR DE TRANSPORTES (2014), https://cetesb.sp.gov.br/inventario-gee-sp/wp-content/uploads/sites/34/2014/09/emissoes-no-setor-de-energia_Transportes.pdf.

21. *Id.*

Figure 4: Recent regulatory framework: active mobility and low-carbon – federal, state and municipal levels.



At the federal level, with the National Policy on Climate Change (NPCC), in the Brazilian Nationally Determined Contribution (NDC), the country is committed to promoting efficiency measures, and improvements in transport infrastructure and collective public transport in urban areas. In the “Initial Proposal for Implementing the Nationally Determined Contribution of Brazil (NDC)”²² the contributions and measures proposed for active mobility to exercise its potential to mitigate CO₂ emissions are timid and insufficient, lacking concrete guidelines and actions.

The National Urban Mobility Policy (NPUM) (Law no. 12,187/12),²³ established in 2012, states that all municipalities of more than 20 thousand inhabitants must present a specific urban mobility plan (Decree 56.834/16),²⁴ and must prioritize non-motorized means of transport and collective public

22. FÓRUM BRASILEIRO DE MUDANÇA DO CLIMA [FBMC], PROPOSTA INICIAL DE IMPLEMENTAÇÃO DA CONTRIBUIÇÃO NACIONALMENTE DETERMINADA DO BRASIL 18-22 (2018), <https://www.ccacoalition.org/en/resources/brazils-ndc-initial-implementation-proposal>.

23. Lei No. 12.587, de 3 de Janeiro de 2012, Diário Oficial da União [D.O.U.] de 1.4.2012.

24. Decreto No. 56.834 de 24 de Fevereiro de 2016, Diário Oficial da Cidade de São Paulo de 25.2.2016.

transport. This has several beneficial consequences for the city, as it implies democratization of the use of public space on the roads, gradually reduces the use of the cars, and causes a reduction in the emission of pollutants and an improvement in quality of life, minimizing the respiratory problems caused by pollution and sedentary lifestyles.

At the State level, in 2009, the State Policy on Climate Change (SPCC) was established (Law no. 13,798/2009),²⁵ which aims to reduce greenhouse gas (GHG) emissions by 20% in 2020, in relation to total emissions in the state of São Paulo in 2005. This implies consistent strategies, especially in transport, a sector in which the most significant reductions are possible; in this manner public transport and non-motorized transport are considered essential to achieve greater efficiency and sustainability in urban mobility.²⁶ The Metropolitan Mobility State Policy – MMSP (Law no. 16.956/2019)²⁷ is also identified, in the same line, highlighting the priority of collective public transport modes over individual, the priority of non-polluting public transport modes over pollutants, and incentives for scientific-technological development in order to mitigate the environmental and socioeconomic costs of people and cargo displacements. Thus, it encourages entrepreneurship and startups that produce innovative urban mobility solutions for citizens.

At the municipal level, the São Paulo Climate Change Law (Law 14.933 / 2009)²⁸ also outlines strategies to reduce emissions through the transport sector; however, these measures are restricted to the progressive reduction of fossil fuels within the bus fleet. The municipal law follows some guidelines, such as that for land use, as an infrastructure for transport supports and encourages active mobility, but with a focus on mobility by bicycle, without addressing pedestrian mobility.

Since 2015, organizations have begun to emerge that work on pedestrian mobility in the city of São Paulo, also helping to promote experiences/interventions focused on pedestrians.²⁹ In 2015, the Urban Mobility Plan (UMP) was instituted through Decree No. 56.834 / 2015, in response to the NPUM request, bringing specific guidelines for pedestrian

25. Lei No. 13.798, de 9 de Novembro de 2009, Diário Oficial do Estado de São Paulo [D.O.E.S.P.] de 9.11.2009.

26. See CARLOS HENRIQUE RIBEIRO DE CARVALHO, INSTITUTO DE PESQUISA ECONÔMICA APLICADA, *MOBILIDADE URBANA SUSTENTÁVEL: CONCEITOS, TENDÊNCIAS E REFLEXÕES* (2016); see also Antônio Néilson Rodrigues da Silva, Marcela da Silva Costa & Márcia Helena Macedo, *Multiple views of sustainable urban mobility: The case of Brazil*, 15 *TRANSP. POL'Y* 350 (2008).

27. Lei No. 16.956, de 21 de Março de 2019, Diário Oficial do Estado de São Paulo [D.O.E.S.P.] de 21.3.2019.

28. Lei No. 14.933, de 5 de Junho de 2009, Diário Oficial do Município de São Paulo [D.O.M.S.P.] de 5.6.2009.

29. COMO ANDA O MOVIMENTO PELA MOBILIDADE A PÉ NO BRASIL: AGENTES, OPORTUNIDADES E GARGALOS (Rafaella Basile et al. eds., 2017).

mobility, in response to the demand from civil society, the Active Mobility Integration policy and the Pedestrian Circulation System. These suggest characteristics of the pedestrian displacement network, the infrastructure required and the specific goals for pedestrians and accessibility.

The Municipal Council of Transport and Traffic of São Paulo in 2015 created thematic chambers of cycling and pedestrian mobility, in a bottom-up process, which emerged out of civil society. In June 2017, also featuring the active participation of civil society, the Pedestrian Statute of the city of São Paulo was approved with the main objectives of consolidating the concept of a pedestrian mobility network and of determining the sources of funds for the infrastructure required for walking, such as sidewalks, boardwalks and crossings.³⁰ However, despite the sanction, to date (May 2020) the Statute has not been regulated by City Hall, preventing in practice its application within the law.

In 2019, Decree no. 58.611/2019 was published, which consolidates criteria for the standardization of sidewalks in São Paulo. Further, in the same year, the Municipality of São Paulo, through Municipal Decree no. 58.717/2019,³¹ with support from the World Bank, launched the Road Safety Plan of São Paulo Municipality, developed and elaborated with civil society organizations' involvement: in particular, the Bloomberg Initiative for Global Traffic Safety and WRI Brazil.

When analyzing the regulatory framework, at different government levels, it is clear that the priority for active mobility is guaranteed; however, there are few tools to provide practical results in the qualification of active mobility networks connected to collective public transport. Finally, regarding the role of civil society, it is possible to establish a relationship that the more local (municipal) the public policy, the greater its social influence and participation, opening up opportunities for social innovation of active mobility, as presented in the following topic.

3.2. Social innovation opportunities in active mobility services

In order to improve the conditions for integration with public transport, the initiatives studied have sought to increase the safety and comfort of pedestrians, by reducing speed, and redesigning and expanding sidewalks. The initiatives applied tactical urbanism techniques (temporary interventions) to test the sites for different uses and later, to receive permanent intervention. Table 2 summarizes the interventions studied, based on tactical urbanism and social innovation variables related to the

30. Lei No. 16.673, de 13 de Junho de 2017, Diário Oficial do Município de São Paulo [D.O.M.S.P.] de 13.6.2017.

31. Decreto No. 58.717, de 17 de Abril de 2019, Diário Oficial do Município de São Paulo [D.O.M.S.P.] de 17.5.2019.

introduction of public services for pedestrian mobility.

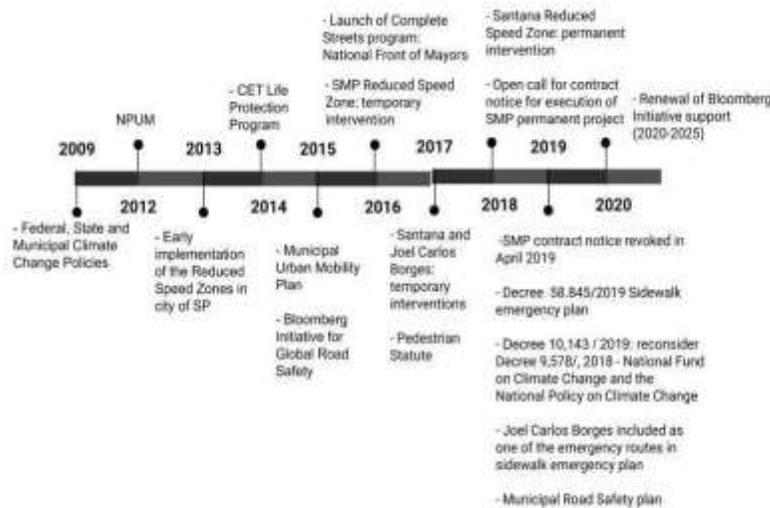
Table 2: Social innovation variables linked to public services for pedestrian mobility.

| Cases | <u>Santana Reduced Speed Zone</u> | <u>São Miguel Paulista Reduced Speed Zone</u> | <u>Joel Carlos Borges Complete Street</u> |
|--|--|--|--|
| Service characteristics: New types of infrastructure treatment for pedestrians | Micro-roundabout; reduction of corner radii; sidewalk extension; narrowing of traffic/moving lane | Sidewalk extensions; mini-squares; narrowing of traffic/moving lane; crosswalk | Sidewalk extensions; narrow traffic/moving lane |
| Analysis variables | | | |
| 1. Associations / collectives / activist groups | Bloomberg Initiative; NACTO; WRI Brazil; Vital Strategies; ITDP; <i>Cidade Ativa</i> | Bloomberg Initiative; NACTO; WRI Brazil; Vital Strategies; ITDP; <i>Cidade Ativa</i> | WRI Brazil; <i>Cidade Ativa</i> |
| 2. Actions to highlight social needs | Actions to obtain community involvement; interviews to assess the acceptance of the proposal and to detect potential points of improvement not foreseen in the project; participatory workshops; development of informative and interactive panels | | |
| 3. Third sector interaction with the public sector | Elaboration and approval of the temporary intervention project; cooperation agreements with City Hall | | |
| 4. Expertise in identifying intervention areas | Discussion and analysis with municipal bodies on sites that could receive temporary intervention; workshops with the community | | |

| | | |
|---|--|--|
| <p>5. Establishment of an evidence base on the effectiveness of the techniques used in the service</p> | <p>Testing at lower costs, with painting materials, vases, and temporary interventions; data collection for preparatory diagnosis and the road safety audit</p> | |
| <p>6. Evidence base created by the public sector</p> | <p>Conducting tests with the mini roundabout to be implemented; diagnosis of perception and evaluation by users; urban reading methodology</p> | <p>In partnership with civil society, beyond pedestrian and vehicular volumetric counts, resulting in a systemic view on the uses, local dynamics and behavioral aspects of the users themselves</p> |
| <p>7. Support from public policies for the diffusion of innovation</p> | <p>Life Protection Program, Safe Pedestrian Program, implementation of Reduced Speed Zone initiatives, Municipal Plan for Urban Mobility</p> | |
| <p>8. Government bodies that support the provision of services</p> | <p>Mobility and Transport Secretariat, Traffic Engineering Company (CET), sub-prefectures</p> | |
| <p>9. Solution to respond to social needs</p> | <p>New urban design with requalification and redistribution of road space; consolidation of the speed reductions; prioritization of active mobility</p> | |
| <p>10. Improvement of environmental quality</p> | <p>Although the initiative reports indicate a tendency to improve environmental quality, especially in aspects related to air quality and reduction of noise pollution, until now, there are no evaluation methods to prove such improvements.</p> | |
| <p>11. Social Impact</p> | <p>Definition of temporary steps to measure impacts and results; impact evaluation was carried out by the organizations <i>Cidade Ativa</i> and LabMob UFRJ (surveys of the flow of people and vehicles, opinion polls and user profiles)</p> | |

Figure 5 shows the integration of the active mobility initiatives studied in the regulatory framework mapped for urban mobility and climate change in Figure 4. The regulatory framework's evolution is relatively recent; we have identified developments from civil society performances, establishing opportunities for social innovation related to innovation in pedestrian mobility public services (service characteristics).

Figure 5: Timeline for initiatives and regulatory frameworks.



The innovation, in the local context, in services provided by City Hall, occurred in the treatment of pedestrian spaces: sidewalks; crossings; accessibility; horizontal and vertical signaling in public spaces; traffic light systems suitable for non-motorized transport; and traffic moderation. In order to improve the conditions for integration with collective public transport, the initiatives studied sought to increase safety and comfort for pedestrians by reducing speed, and reforming and expanding sidewalks. Explaining the link between social innovation and innovation in public services, the protagonism of civil society is highlighted by conducting audits and impact evaluations; supervising public bodies; working together to develop the temporary intervention project; analyzing, along with municipal bodies, those sites that could receive temporary intervention; and holding workshops with the community.

Advances in the regulatory framework explicitly point to a contribution toward sustainable development; equity in citizens' access to collective public transport; equity in the use of public spaces for circulation, roads and

public areas; priority of non-motorized modes of transport over motorized and of collective public transport services over individual motorized transport; mitigation of environmental, social and economic costs of displacement of people and cargo in the city; encouragement of scientific and technological development; and the use of renewable and less polluting energy, among others.

By analyzing the recent Brazilian regulatory framework for active mobility and low-carbon economy, it is possible to establish the relationship that the more local (municipal) the public policy, the greater its social influence and participation. These have concrete examples, such as the municipal Urban Mobility Plan, the Pedestrian Statute, creation of the walking mobility thematic chamber at the municipal council, as well as the active mobility initiatives studied, developed through cooperation agreements with City Hall.

However, despite the advances indicated by both experiences of active mobility analyzed, highlighting the role of civil society organizations, and by the progress in the regulatory framework, until the present day innovative practices in the local context have been restricted to treatment of infrastructure for pedestrians. Therefore, there are great potentials for the continued introduction of innovations for the improvement and scale gain of public services for pedestrian mobility, in line with the paradigm of sustainable urban mobility and based on social participation.

4. CONCLUSION

Through public services, the social innovations in the Reduced Speed Zones and Complete Streets manifest as a requalification and availability of urban spaces that motor vehicles have previously occupied densely, now to be used by pedestrians. The social innovations introduced are associated with public services previously unavailable in the local context: the improvement of pedestrian spaces, applying temporary interventions for road requalification with a transformation of streets.

The improvement of urban mobility, which responds to the needs evidenced by society, requires services that result in new ways of people occupying the city road space. It is about not only expanding, but also creating and requalifying services for active mobility. New, improved or modified services that result from social innovation, unlike conventional market innovation, are geared toward generating solutions for society rather than the private individual.

The Reduced Speed Zone and Complete Street cases illustrate social innovation opportunities anchored in public services for active mobility in São Paulo. It shows the relevance of paying attention to forms of non-technological innovation, and that the deliberate structuring of innovation

networks does not necessarily support innovative processes and results verified in the local context.

The development, introduction and support of social innovation was supported by the role of third sector organizations, with the establishment of agreements with the city government. Additionally, it requires knowledge and competencies from public and third sector organizations, the use of material factors (i.e. construction of roundabouts, temporary and permanent expansion of sidewalks, narrowing of traffic/moving lane, reduction of corner radii, accessibility ramps), and interactions between key stakeholders.

Through the work of third sector organizations, we also highlight the role of volunteers and collectives in the creation and introduction of solutions for active mobility, which meet social needs based on the inclusion of pedestrians as a priority in the use of urban road space. The organizations draw attention to the interests of the individual citizen and use their experience to interact with the public service provider (City Hall) in the identification of areas for intervention and in the establishment of evidence bases on the effectiveness of the techniques used for the requalification of the road space. They also assist in the definition of forms and characteristics of social innovation (service characteristics), that represent solutions to social needs presented to the public sector (service provider).

The public sector may create a window of opportunity for the promotion of innovations, through public policies, and introduces services for the requalification and maintenance of pedestrian urban space. This approach, focused on the relationship between social innovation and innovation in services, therefore permits a better understanding of innovation processes and results.