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Unveiling the Role of Stakeholders' Involvement in City Climate Neutrality: a Salience Theory Perspective

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1. Research Background

1.1 Climate Change and Cities

Cities are the epicenters of modern life and are now home to over 4.3 billion people, more than 56% of the world's population. In the last 50 years, while the urban population has continuously grown, the rural population has declined (United Nations, 2022). In addition, further growth in urbanization trends is projected, with the United Nations (2022) predicting that 68% of the world's population will live in urban areas by 2050. As a result, even though urban centers only occupy 3% of the planet's surface, they consume over 65% of the world's energy and produce 72% of all greenhouse gas emissions (European Commission, 2020a). Consequently, cities are the arenas where the impacts of climate change will be most acutely felt (Ribeiro and Gonçalves, 2019) and academic interest in unveiling cities' role in tackling climate change has grown in recent decades (Sharifi, 2020).

Several studies have already demonstrated that cities have great potential for implementing and scaling behavioural, economic, and technological interventions for climate change adaptation and mitigation (Bettencourt et al., 2007; Elmqvist et al., 2019). Indeed, cities represent key facilitators for climate change mitigation (Damsø et al., 2017) and the urban response can provide essential lessons in transitioning to a climate-neutral stance by 2050. In this context, the strategic role of cities in tackling climate change is strongly emerging, also highlighting the magnitude of the different city's stakeholders to scale up in collaboration for co-designing and co-developing systemic and transformative climate neutrality actions (Kabisch et al., 2016). The evidence of the central role that cities have assumed in the political and scientific debate, is their increasingly recognition as "living laboratories" where to test new development models making them more inclusive, safe, resilient and sustainable, as emphasized by the Sustainable Development Goal (SDG) 11 (Salvia et al., 2023). However, advancing climate neutrality in cities is a wicked problem (Levin et al., 2012; Rittel and Webber, 1973): it is complex, with great uncertainty, and requires adaptive strategies by multiple actors across different economic, social, and policy domains. For this reason, cities can be seen as extremely complex ecosystems (Appio et al., 2019; Audretsch and Belitski, 2017) called to tackle the grand challenges of the 21st century (Cappa et al., 2022; George et al., 2016), namely the pressing environmental and social issues that societies are facing at present, with the need of continuous and constructive dialogue between their stakeholders (e.g., the research community, companies and financial institutions, non-governmental organizations, and the civil society). Accordingly, the broader literature on urban climate governance suggests that cities are in a unique position to take meaningful climate action where nation-states usually fail (Brescia and Marshall, 2016). They actively participate in climate governance initiatives at the local level, such as eco-financing and urban laboratories, which

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would be difficult to govern at the national level (van der Heijden et al., 2020). Moreover, cities have begun to deviate from traditional national-regional-local hierarchies and collaborate in translocal and occasionally transnational networks (Acuto and Rayner, 2016; Ferraris et al., 2020). These innovative models position cities as crucial sites for climate action, climate governance, and climate research. These initiatives involve processes by which municipalities and other stakeholders direct the actions and behaviours of individuals and organizations to attain city-level climate mitigation and adaptation objectives (Wolfram, 2016). Carbon neutrality has become central in policy discourse and cities' climate actions are crucial to achieve this goal. Consequently, many cities have already published ambitious climate neutrality target years and are preparing for the transition to climate neutrality (Huovila et al., 2022).

1.2 The European Context and the Net Zero Mission

Against this background, the efforts of cities are complemented by European-level initiatives. The European Green Deal, which aims to create a climate-neutral Europe by 2050, provides a policy framework for cities to lead climate action. As part of its mission-driven governance, the European Commission has set the audacious goal of 100 climate-neutral cities in Europe by 2030 (European Commission, 2020b). The cities represent 12% of the EU population. Among those 100, 9 cities are Italians (i.e., Bologna, Bergamo, Florence, Milan, Padua, Parma, Rome, Prato, and Turin). The 9 mission cities have a focused objective of achieving carbon neutrality by addressing various challenges through shared and city-specific activities, while empowering internal and external governance. At this stage, each of the selected cities is implementing a Climate City Contract (CCC), which formulates goals and targets, ensures stakeholder involvement and includes an action plan for coordinated strategies and their responsibilities 'towards climate transformation and neutrality' (European Commission, 2020b). According to the Net Zero City Report (European Commission, 2021), identified barriers to carbon neutrality include internal silos within municipalities, limited transversal skills and knowledge, inadequate stakeholder involvement, limited energy data availability and interoperability, absence of standardized pathways, bureaucratic hurdles, and lack of external governance and involvement of key actors and citizens. To overcome these challenges, the cities form clusters and address governance bottlenecks. Specifically, the Data Cluster aims to address the lack of quality energy data by facilitating data sharing among public and private actors. Additionally, the Finance Cluster works towards accelerating innovative funding schemes for energy efficiency by empowering governance at both internal and external levels (European Commission, 2021). As Shabb et al. (2022) explained in the "Launching the Mission for 100 Climate Neutral Cities in Europe: Characteristics, Critiques, and Challenges", the CCCs are intended to be dynamic and living documents that will trigger innovation and unlock five main driving forces for transformation: new forms of participatory and innovative governance; a new economic and funding model; integrated urban planning; digital technologies; and innovation management (European Commission, 2021).

1.3 Research gap and purpose: enhancing the stakeholder theory

The previously described efforts aim to harness the dynamic momentum of cities and communities seeking transformative change. However, even as the potential of cities for climate action is increasingly recognized, the empirical base of knowledge on how cities effectively govern climate change action remains limited (van der Heijden et al., 2020). Consequently, due to the complex and multi-layered nature of these ecosystems, existing within various institutional environments characterized by diverse hierarchies and cultures, understanding the roles and influence of various stakeholders in urban climate governance is critical (Mora et al., 2019). This complexity presents numerous challenges, such as how dominant entities within a city justify their

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actions or how new entities emerge to oversee new initiatives. The conceptualization of these intricate environments requires an in-depth understanding of the coordination mechanisms that create a conducive environment for the continuous implementation of transformative projects (Gupta et al., 2020). A concept that has proven insightful in understanding these ecosystems is that of orchestration, a term drawn from management literature (Dhanaraj and Parkhe, 2006). In business ecosystems or innovation networks, it focuses on the optimal use of shared resources and how to complement these resources. Key orchestration activities usually involve value appropriation, legitimizing activities, and knowledge mobility (Nambisan and Sawhney, 2011). These are typically managed by a dominant actor in the network. Orchestration models have been identified as closed and open systems (Giudici et al., 2018). Closed orchestration is about implementing the motivations of the dominant focal organization directly. In open system orchestration, the goal of the orchestrator is to broker between network members in their varied objectives that together facilitate spontaneous knowledge sharing and discovery of complementarities (Dutt et al., 2016). While the concept of orchestration, characterized by the prominent hub organization directing the resources and initiatives of its network members for a shared objective, is well comprehended in business and management literature (Giudici et al., 2018), the orchestration in complex multi-actor ecosystems, such as local governmental ecosystems, remains less explored (Gupta et al., 2020; Martina et al., 2022; Schiller et al., 2023). Building upon the stakeholder salience theory (Mitchell et al., 1997), this study aims to fill that gap by exploring the relationship between stakeholders' influence and decision-makers' awareness and attitudes towards climate neutrality. By examining the role and saliency of stakeholders in urban climate governance, this study hopes to shed light on how cities can better leverage their unique position in the fight against climate change. Indeed, driven by the rising awareness of the environmental impacts of business activities and stakeholder pressures, decision-makers within cities are compelled to reassess their strategies and policies, striving towards environmental stewardship (Rassiah et al., 2022). This ongoing process involves a thorough consideration of all stakeholders' interests and an understanding of the relationships between stakeholders and decision-makers to discern the factors influencing the decision-making process (Beck and Storopoli, 2021). According to the stakeholder salience theory, decision-makers can determine which stakeholders are most significant based on their legitimacy, power, and urgency (Mitchell et al., 1997). Decision-makers, wielding the authority to allocate resources, have a significant impact on the outcomes of these strategies (Narayanan and Nath, 1993). Consequently, this study's first research question, "What is the role of cities' stakeholders and how can they drive innovation and create social-ecological value for the urban ecosystem?", aims to discover the stakeholders' role in achieving the city's net zero mission. The second research question, "What are the ecosystem's governance, strategies and actions to achieve the city's net zero mission?", aims to investigate through the lens of the saliency theory how the different stakeholders can contribute to the urban ecosystem based on the dimension of power, legitimacy and urgency.

2. Research Design

2.1 Methodology

In order to answer the research questions of this study, as done in previous studies with similar objectives (Santini et al., 2016; Tanima et al., 2023), the authors engaged in what is called participatory action research (PAR) (MacDonald, 2012). Indeed, PAR embodies the collaborative work of researchers with the investigated organization, generating knowledge for problem-solving and driving transformative actions (Chambers, 1997). In this approach, the data collector actively engages with the organization, playing a subjective role in shaping the firms' transformation based on the generated knowledge. Moreover, PAR fosters opportunities for

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dialogue, as it acknowledges that the researcher is not the sole proprietor of the research schedule and plans, nor the sole producer of knowledge. Instead, there is a collaborative relationship where academic knowledge intersects with the organizational knowledge, leading to a deeper understanding of the situation (Bernard, 2000). This aspect aligns with the principles of the Action Research paradigm (Ferraro et al., 2015), which emphasizes the shift of the researcher's role from a detached outsider to an engaged participant. Furthermore, the commitment and interest of participants in PAR can vary, leading to sporadic or unpredictable levels of engagement (Cornwall and Jewkes, 1995). To address this challenge, the researcher must prioritize building trust and creating safe spaces where participants feel comfortable to openly express themselves and share their experiences, explore alternative perspectives, critically reflect on dominant ideologies, and collaboratively identify strategies for change. This approach fosters a collective learning process, where participants increasingly learn "from and with each other" (Joosse et al., 2020) and opens up the potential for collaboration in the creation of knowledge. Action research is an approach to research that aims at both taking action and creating knowledge or theory about that action (Eden and Huxham, 1996; Reason and Bradbury, 2001; Susman and Evered, 1978). It works through a cyclical process of consciously and deliberately: planning, taking action, evaluating that action and leading to further planning, and so on. As a strategy of involving people in the decision-making processes of social development, participation is by now an established approach to change (Nolas, 2009). For these reasons, the authors engaged in an ethnographic approach, which, combined with action research, means that it builds upon notions of immersion, long-term engagement, and understanding of local contexts holistically.

2.2 Research setting

In September 2021, the EC Horizon Europe research and innovation framework program 2021–2027 launched a Mission "Cities Mission" aimed at delivering "100 climate-neutral cities in Europe by 2030" and called upon cities to express their interest in participating. After the call closed on 31 January 2022, a subset of 377 candidate cities in 35 countries were received, and 362 were considered eligible to participate in the Cities Mission (European Commission, 2020b). Each expression of interest was evaluated by independent experts and the Commission then applied additional criteria (local climate planning, climate emergency declarations, participation in networks, international projects, and competitions) to ensure geographical balance and a diverse group of participating cities in terms of size, demographic impact, and innovative ideas. On April 28 2022, the final 100 cities selected, plus 12 cities from countries associated with "Horizon Europe", were published. This study employs a purposive and theoretical sampling approach (Yin, 2017) in alignment with its specific research objectives. The selection of theoretical sampling is based on its pertinence in comprehending a social phenomenon. Hence, to conduct this participatory action research, the authors chose the City of Turin as an in-depth case study (Yin, 2017). Turin, as one of the 100 neutral cities selected by the European Commission, stands as a compelling case study for investigating cities' transition towards climate neutrality through the involvement of different stakeholders, which are part of complex innovation and entrepreneurial ecosystems. For example, McGrath et al. (1982) emphasize the necessity of collecting fine-grained data and maintaining proximity to the research context when investigating complex phenomena. In the case of Turin, this approach becomes crucial due to the multifaceted nature of its industrial landscape and the intricate interplay between stakeholders. The significance of that city as a case study thus arises from its unique combination of factors, including its historical industrial background, its diverse ecosystem of industries, and the involvement of various stakeholders in the city's sustainable development efforts. Indeed, Turin has a rich industrial heritage, particularly in the automotive sector, which has been undergoing a transformative shift towards sustainability in recent years. However, Turin's ecosystem extends beyond the automotive industry, encompassing a broad range of sectors such as manufacturing,

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technology, and research institutions. This industrial context makes this city an intriguing case for examining the implementation of climate city contracts, as it provides an opportunity to explore the challenges and opportunities faced by cities rooted in traditional industrial sectors when pursuing climate neutrality goals. This multifaceted environment presents a complex network of stakeholders, including businesses, academia, government agencies, and civil society organizations, all playing vital roles in the city's sustainability initiatives (Figure 1).
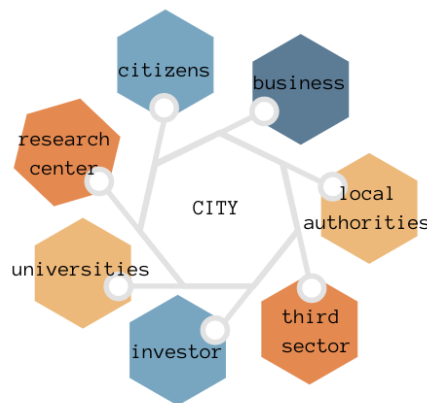

Figure 1. City's Stakeholders

Investigating climate city contracts in Turin allows for a comprehensive examination of the collaborative efforts and interactions between these diverse stakeholders in driving the transition toward climate neutrality. Moreover, the absence of previous empirical research on climate city contracts necessitates an inductive approach to theorizing about the topic (Weick, 1995). Turin, with its unique characteristics and ongoing sustainability initiatives, offers an ideal context for inductive theorization. By closely examining the city's experiences, researchers can develop new insights and theoretical frameworks to inform future studies on climate neutrality in urban contexts. Finally, the authenticity of data interpretation is paramount in selecting a case study. Welch et al. (2011) suggest a purposeful selection of a case that represents all the characteristics relevant to the research topic. Turin's comprehensive ecosystem, encompassing various industries, research institutions, and government agencies, provides a rich environment for data collection and interpretation. By purposefully selecting Torino as the case study, researchers can capture the diverse perspectives and dynamics among stakeholders involved in the city's sustainability initiatives, maximizing the authenticity and relevance of the findings. Accordingly, the decision to select Turin as the setting point for this research is based on the active engagement and collaboration of two of this study's authors with the Innovation and Environment Councilor of Turin's Municipality.

Action research can be defined as an approach in which the action researcher or interviewer and a client or interviewee collaborate in the diagnosis of a problem and in the development of a solution based on the diagnosis (Bryman and Bell, 2015). As defined by Argyris et al. (1985) action research about experimenting on real problems within organizations (in this research, the organization is the City context and ecosystem) and is designed to assist in their solution (in this research to achieve the Climate Neutrality). Action research is an approach to research which aims at both taking action and creating knowledge or theory about that action (Eden and Huxham, 1996; Reason and Bradbury, 2001; Susman and Evered, 1978). It works through a cyclical process of consciously and deliberately: planning, taking action, evaluating that action and leading to further planning, and so on. As a strategy of involving people in the decision-making processes of social development, participation is by now an established approach to change (Nolas, 2009).

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2.3 Data Collection and Analysis

The first research question, "What is the role of cities' stakeholders and how can they drive innovation and create social-ecological value for the urban ecosystem?", aims to discover the stakeholders' role in achieving the city's net zero mission. The second research question, "What are the ecosystem's governance, strategies, and actions to achieve the city's net zero mission?", aims to investigate through the lens of the saliency theory how the different stakeholders can contribute to the urban ecosystem based on the dimension of power, legitimacy, and urgency.

For this purpose, the authors proceeded to collect both quantitative and qualitative data. The research can be divided into three main phases (Hemment, 2007): a preparation phase in which the project is defined, the selection of a field site, and the research process itself. The preparation phase began in January 2023, as shown in Figure 2. During this phase, information was gathered from scholars such as Salvia et al. (2023) and Shabb et al. (2022), who have written about Climate Neutrality. Additionally, EU reports on Net Zero City were consulted to gather relevant insights(European Commission, 2020b). Furthermore, the selection of the fieldsite was carried out among the 100 eligible cities. The ethnographic nature of the research process required a flexible and adaptable approach to the design of the investigation activity, which is still ongoing. The ethnographic participatory action research requires a data collection phase that includes a diary of subjective impressions, a collection of documents relating to a situation (i.e., during online calls, events, workshops), observation notes of meetings, questionnaire surveys, interviews, tape or video recordings of meetings, and written descriptions of meetings or interviews (which may be given to participants for them to validate or amend). In this action research, the authors, as investigators part of the field of study, were present during all the official interactions among the different stakeholders, and, as with participant observation, this has its own attendant problems. In addition, within the research project, two of the authors actively embraced an insider role, taking on the responsibility of shaping and facilitating the process of developing a shared position. On the other hand, another author assumed an outsider role, primarily observing the process, collecting relevant data, and conducting analysis to contribute to the research findings. By implementing this approach, as suggested by Gioia et al. (2010), the authors aimed to leverage both insider perspectives and external observations, allowing for a comprehensive understanding of the subject matter and enhancing the overall quality of the research. Qualitative researchers tend to take greater account of the power relations that exist between the researcher him or herself and the people who are the main subject of study (Bryman and Bell, 2015). The actors participating in this research are belonging to different City Stakeholders (see Figure 1) like: (1) local authorities (e.g., the Director of the Innovation and Environment Department), (2) Universities (e.g., the Polytechnic and University of Turin), (3) category associations like the Italian Industrial Association, (4) companies belonging to key sectors (i.e., Energy, Mobility and Transport, Waste and circular economy, Green and nature, Built environment, ICT, Bank Sector), and (5) the so-called Third Sector, which includes non-governmental representative' organizations. The consultation with the different parties has been set online and upon the presence of the different stakeholders' availability. An in-presence focus group is planned to occurr in July in order to invite all the private sector stakeholders and further investigate their interest and their commitment in terms of actual and future involvement in environmental actions and activities. The initial outcome of those participatory actions is that the commitment and the interest to be involved in such great achievement is a common will, but some guidance is needed on what a multi-level governance framework could look like. As highlighted by Shabb et al. (2022), further guidance on how to implement multi-level governance in practice is needed. This call for a holistic approach and systemic transformation is welcomed by the authors of this research. Furthermore, the next step evaluates the involvement of the non-profit sector. Jetoo (2019) discusses the role of stakeholders in the planning phase related to the City of

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Turku's goal to become carbon-neutral by 2029, calling for more active engagement. It is suggested that limited stakeholder engagement in the planning phase may impede implementation through the loss of legitimacy and through a potentially incorrect plan with incomplete knowledge (Huovila et al., 2022). After completing the first consultation phase, the Municipality of Turin, incorporating all stakeholders' inputs and agreements, will present its commitment to sign the Climate City Contract to the European Commission in April 2024. Following the initial phase, the research project will monitor the second phase, which involves direct stakeholder involvement in implementing the agreed actions and activities.
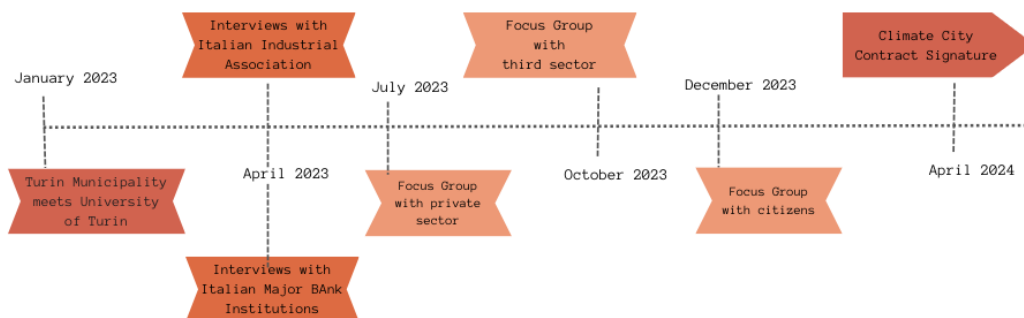

Figure 2. Data Collection Plan

3. Findings and main implications

Despite the ongoing nature of this study, the first findings show that the companies addressed in the first survey sent out in June 2023 are working in different areas of the private sector (big companies 20%, small companies 10%, micro companies and start-ups 70%). The answered companies unveiled a moderate value of their knowledge and a significant interest in learning more on the topics in line with this research: EU Green Deal, UN 2030 Agenda, National Sustainable Strategic Plan, Zero EU Mission City, and Climate City Contract. The actual picture of the companies' climate action is related to the redefinition of sustainable and circular business models (products, processes, and innovative services) for 70%, followed by the energy efficiency and renewables actions (e.g., energy communities) with 40%; and green infrastructure and Nature Based Solutions 30%. The companies' future plan is also including other dimensions such as waste management, emissions control, and production waste reduction; sustainable transportation (e.g., cycle paths, electric cars, shared company fleets); upgrading buildings' environment (e.g., building retrofit, district heating, public lighting); optimization of logistics and distribution models. The companies shared different activities to address the areas of interventions listed below to achieve climate neutrality: awareness-raising campaigns towards companies' stakeholders (employees, citizens, schools, and young people); sustainability reporting; citizen engagement activities; neutrality measurement systems; investment in buildings, equipment, facilities; human resources training and upskilling on climate neutrality. The majority of them are working at National Level (45%), and at the local level (Turin City), with 35% and 20% in the down-stream or in the upper stream of the value chain. After this first step, the semi-structured interview and focus groups were designed to discover the relationship between the different stakeholders involved local authorities, businesses, research centers, and investors) in terms of power, legitimacy, and urgency (See Figure 3). The first research results show that the municipality (dominant stakeholder – nr. 3 Figure 3) and corporates (dangerous stakeholders – nr. 2 Figure 3) have the highest salience in the first phase of the Net Zero City Mission. The municipality has the legitimacy and the power, while the corporates have the power and the

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urgency to implement such climate policies (i.e., access to external investment or incentives, CSR strategy). Therefore, the non-governmental organizations will be involved in the second phase of the participatory approach and they play the role of dependent stakeholders having urgency and legitimacy to stay at this consultation's table; the citizens are not attending the consultation's table so far in the multilevel engagement process.
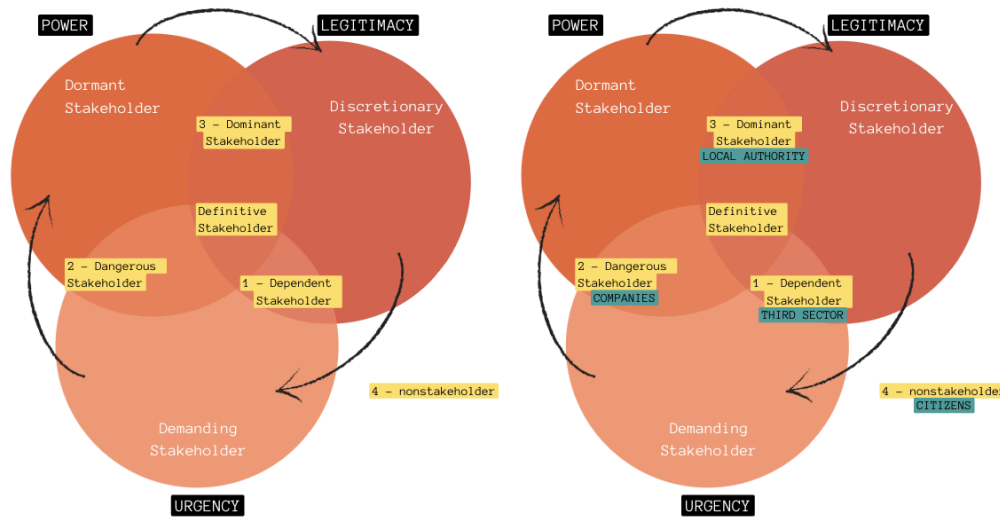

Figure 3. Salience Theory applied to Turin City Case Study

The preliminary results are partially replying to the RQ1 "What is the role of cities' stakeholders and how they can drive innovation and create social-ecological value for the urban ecosystem?" and the RQ2 "What are the ecosystem's governance, strategies and actions to achieve the city's net zero mission?". This is a research in progress as well as a blueprint for how others may join the conversation to develop a more useful stakeholder theory onto urban management. The next research phase aims to actively involve the citizens or civil society organizations able to engage with citizens. This phase of our Participatory Action Ethnography aims to study how the involvement of citizens and third sector as additional key stakeholders can speed up the innovation and create social-ecological value for the urban ecosystem. Therefore, the ecosystem's governance, strategies and actions to achieve the city's net zero mission will change accordingly and will be adapted due to the introduction of new players that have different perspectives and saliency. As cities play a central role in transition to carbon neutrality, the results are expected to be useful for policy makers, city decision makers and other stakeholders dealing with carbon neutrality plans (Huovila et al., 2022). From this research perspective, the limitations of this Case Study is related to the exclusion of the citizens a-priori of the round table of the stakeholders' ecosystem. As Shabb et al. (2022) highlighted, engaging citizens in the governance of cities as key stakeholders is particularly stressed as a prerequisite for the success of the mission. Therefore a future research avenue is to further investigate their role within the in the Saliency Theory and analyse how the "nonstakeholder" position (number 4 in the Figure 3) can run towards the "dominant" role (number 3 in the figure 3) passing by the legitimacy dimension, urgency and finally power dimension to achieve the city's net zero mission - and become a definitive stakeholder in city ecosystem. Another limitation is related to the uncovered research to unveil how the value of power, legitimacy and urgency can change among urban stakeholders. This future research agenda aims to further develop the salience theory and to further provide practical implications to policy-makers and practitioners.

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This paper contributes to the academic knowledge on both governmental and urban ecosystems by providing empirical insights on how open orchestration models can be set up in the context of urban areas (Gupta et al., 2020; Martina et al., 2022; Schiller et al., 2023) by promoting the interactions among different stakeholders that are part of complex innovation and entrepreneurial ecosystems. Secondly, this work contributes to the stakeholder theory by identifying those actors, such as local authorities, citizens, businesses, research centers, non-governamental organizations, investors and regional and national authorities, based on their saliency and identifying strategies to increase their levels of power, urgency, and legitimacy (Mitchell et al., 1997), fostering the adoption of new participatory and multilevel governance systems to achieve the net zero city mission. In addition to the theoretical contributions, this study also offers managerial implications to policy-makers in the definition of their agenda and their decision making process. The findings show that cities need support in development and assessment of action plans, coming up with creative and innovative ideas and increased collaboration with various stakeholders. Important ways forward include adoption of a systems approach to carbon neutrality, moving towards more sustainable governance and navigating through administrative silos. Using suitable methods could facilitate collaboration between cities and their stakeholders, thus joining forces for a faster transition.

Keywords: urban ecosystem; participatory process; climate change management; stakeholder, salience; public policy

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