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Exploring city climate leadership in theory and practice: responding to the polycentric challenge

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ABSTRACT

This article has a twofold aim inspired by observed gaps in urban climate governance theory and practice. First, it explores city leadership strategies of securing a closer correspondence between climate policy goals and observed realities on the ground. Second, it presents an in-depth and nuanced theoretical understanding of urban climate leadership inspired by four bodies of public administration leadership theory, reflecting leadership as an understudied field in the urban climate governance literature. Being largely exploratory and conceptual in nature, the article aims more specifically to identify the contribution of different public leadership theories and strategies to our understanding of city climate leadership, the explanatory reach and limitations of the theories and the potential interdependency between the leadership strategies. The practice of climate leadership in the city of Oslo is used as an illustrative case. The results show that each body of theory shed light on relevant aspects of climate leadership practices in diverse institutional contexts. By applying a careful mix of these leadership strategies and instruments, city leadership adds the stringence, predictability and motivation needed for multiple public and private actors to engage collectively and bridge policy gaps. However, social, institutional and physical constraints related to the complex, polycentric character of urban climate governance represent phenomena that fall outside the scope of the leadership theories. This point to limitations in the theories' explanatory reach that give direction to future research.

Introduction

Cities have become interesting locations for the study of climate leadership due to the failure of the Paris Agreement to bring a global compact between nations (Wolfram et al., 2019). Although their role to a certain degree may be overstated (van der Heijden, 2019), cities are observed to develop goals, test new institutional arrangements and leadership roles for ensuring policy integration internally and developing and experimenting with climate policies, plans and projects through interactive processes with external actors to advance innovative step changes (Anguelovksi & Carmin, 2011; Kern, 2019).

Upon addressing climate change, cities meet a global collective-action problem where all face the likelihood of extremely adverse outcomes unless many independent units or individuals take substantive climate actions to reduce GHG emissions and enhance resilience (Brechin, 2016; Ostrom, 2010, p. 551). To this end, public leaders need to adopt a variety of roles, instruments and institutions to pursue urban climate governance and take leadership at various scales. Through polycentric efforts, cities may engage and motivate multiple formally independent yet interconnected actors, such as private businesses and civil society groups (Bulkeley, 2013; Ostrom, 2010, p. 555; Torney, 2019).

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However, a deeper understanding of cities' role in urban climate governance capable of explaining the observed gap between political rhetoric and limited implementation outcomes on the ground is needed (van der Heijden, 2019). To bridge this gap requires new knowledge of urban climate leadership and the factors contributing to effective polycentric governance (Hughes, 2017). By combining lessons from urban climate governance research with public administrations' more fine-grained theories of public leadership, this article aims to provide a new and more nuanced understanding of the public climate leadership of cities. As underlined in previous research, we suggest that such a combination of different scholarly traditions is key if we are to bring our knowledge on urban climate governance forward (van der Heijden, 2019).

Being largely exploratory and conceptual in nature, the article aims more specifically to identify the *contribution* of different public leadership theories and strategies to our understanding of city climate leadership, the *explanatory reach and limitations* of the theories and the potential *interdependency* between the leadership strategies as they unfold in the city of Oslo. Oslo is a front running city on climate governance and an interesting laboratory for studying innovative climate leadership.[1]

This mirroring of leadership theories in urban climate leadership practices has a twofold aim; (1) to provide more in-depth knowledge on key aspects of climate leadership in cities, and (2) to explore public leadership theories' explanatory reach by exposing them to the climate governance field which is a more complex and polycentric policy area than the traditional public administrative settings these leadership theories are usually applied to.

The paper proceeds as follows. First, we outline insights conveyed from previous leadership and climate change research. Second, the Oslo case is presented and positioned, and data and methods described. Third, we propose a theoretical framework including four public leadership strategies for examining city climate leadership and mirror them in the urban climate leadership performed by Oslo. Fourth, the theories' strengths and limitations for understanding urban climate leadership are discussed, and finally conclusions are drawn.

The current understanding of urban climate governance

Leadership within the urban climate governance literature

Urban climate governance is defined in broad terms as 'the ways in which public, private and civil society actors and institutions articulate climate goals, exercise influence and authority, and manage climate planning and implementation processes' (Anguelovksi & Carmin, 2011, p. 169). When reviewing the most central contributions to the urban climate governance literature, we find three themes attracting particular attention: *urban experiments as a tool for climate governance innovation* (Bernstein & Hoffmann, 2018; Bulkeley et al., 2019; Bulkeley & Castán Broto, 2013; Karvonen, 2018; Wolfram et al., 2019); *city networks as platforms for learning and innovation* (Acuto & Rayner, 2016; Acuto & Leffel, 2020; Davidson et al., 2016); and *cities as leaders and/or pioneers at global and regional level* (Bäckstrand et al., 2017; Eckersley, 2018; Gordon, 2018; Gordon & Johnson, 2017; Jordan et al., 2015; Kern, 2019; Torney, 2019; van der Heijden, 2018; van der Heijden, 2019; Wurzel et al., 2019). These contributions generally address *urban* climate leadership, i.e. the particular leadership role taken within the urban and global domain. The variety of more specific leadership roles and instruments adopted by public leadership at multiple local arenas of the polycentric system are generally not addressed.

Of particular interest here are more recent scholarly contributions on cities and climate governance at *the subnational level* (van der Heijden, 2019; Wurzel et al., 2019). These studies, among others, focus on city governments' inability to create adequate policy and institutional transitions in government and governance to address climate adaptation and mitigation as an integrated and coherent agenda (Bulkeley, 2013; Göpfert et al., 2019). Moreover, a general observation from this literature is that most cities do not achieve their own short- or long-term climate goals and are not yet on pathways towards climate transformation (Bulkeley & Newell, 2015; Kern, 2019; Wang et al., 2014). In a similar vein, van der Heijden (2015, 2019) argues that there is a 'leadership delusion' or 'frontrunner paradox' perceived as a knowledge mismatch in how the presentation of success masks low performance and acceptance for changes on the ground. These shortcomings in

current climate leadership turn our attention to how the city leadership may contribute to more effective climate transformation, the limitations or constraints for the performance of such leadership and the possible leadership strategies that are capable of mobilizing and influencing a polycentric landscape of actors at various scales and in different sectors.

Public leadership in the context of urban climate governance

To define public leadership is a complex endeavour, as it is performed in various settings, at different scales and promoting a multitude of goals (Van Wart, 2013a). The recent and stronger emphasis on collective, integrative and public value oriented aspects of public leadership moves the research agenda beyond the traditional and narrow focus on leader-follower relationships to an understanding of public leadership as 'the inspiration of others to undertake collective action in pursuit of the common good' (Crosby & Bryson, 2018, p. 1268). This definition is particularly interesting when studying public leadership devoted to the creation of pathways towards climate transformation, as the city leadership only controls minor domains of the problems at stake and their potential solution (Hughes et al., 2018; Jordan et al., 2019; Wang et al., 2014; Wurzel et al., 2019).

At the city level, climate leadership may be performed either by elected *politicians*' hands-off leadership through identification, exploration and definition of problems and challenges calling for collective goals and actions; design of innovative, feasible and robust solutions; and mobilization of support for policies and measures (Sørensen & Torfing, 2019, 2005; Tucker, 1995). Or by *administrative managers and advisors* hands-on, day-to-day leadership operationalizing, implementing, adjusting, and further developing decided goals and measures (Sørensen & Torfing, 2005; Van Wart, 2013b). This article concentrates exactly on such *city climate leadership* exercised by the city government and its administration, having the formal responsibility and acting on behalf of the city. In this regard, effective city climate governance requires a leadership capable of assembling and aligning internal public entities within the municipality or mobilizing and activating a broad array of actors across the public-private divide for collective goal setting, planning, development of new institutions or otherwise promoting experiments, innovations and their upscaling (Gordon & Johnson, 2017; Kern, 2019). Meeting this challenge presupposes a broad toolbox of urban leadership in practice (van der Heijden, 2015), thus it is of particular interest to gain insights from a city with expressed intent and ambition to take climate leadership such as Oslo.

Research approach: positioning the Oslo case and introducing data and methodology

An iterative hermeneutical process directed and formed our collection and analysis of the empirical material from Oslo. We started out with a hypothesis that climate change, reflecting a complex, unruly and collective action problem, would require a form of collaborative leadership. Inspired by theories of collaborative governance and co-creation, the interview guide sought to capture practices of co-creational leadership, and how and to what extent they were integrated and supported by more traditional forms of leadership strategies to tackle an evolving climate policy agenda.

The data material is mainly qualitative and include a *document study* of climate strategies, plans, policies and steering instructions of the city over the last decade or so (The City of Oslo, 2017, 2018, 2019a, 2019b, 2020a, 2020d), combined with 48 *in-depth interviews* in the period 2018-2020. Informants were selected according to a snowball method. They represented civil servants in the city administration charged with climate governance responsibility (23); politicians (5, in position and opposition); private businesses (8); neighbouring municipalities (4); environmental foundations (2); state actors (2); and actors engaged as social entrepreneurs in brokering between private developers and public agencies and citizens (3). The interviews lasted approximately 1–2 hour, focusing on the interviewees' impressions and memory regarding the topic. All interviews were audio-taped, transcribed and coded in NVIVO. The codes were targeted enough to illuminate our research interest, yet broad enough to open for findings outside the scope of our original focus.

The data material showed Oslo as a climate governance 'late-bloomer', compared to many front running global cities (Hofstad et al., 2020a). Nevertheless, the city has effectively closed this performance gap through continuous and cross-political support to climate change policies, and effective climate leadership consisting of multiple policies and activities that over time has grown in strength and breadth (Hofstad et al., 2020b). Public leadership strategies evolved on a needs-basis, in instrumental ways, linked to the development of new strategies, policy instruments, pilot experiments and/or technologies and when operating in unploughed field (Vedeld et al., forthcoming). Business and civil society actors played key partner roles through iterative or virtuous cycles of formal and informal dialogues in a variety of meetings and trans-local collaborative arenas to develop knowledge, innovative experimentations and pursue climate policies on the ground. This resulted in a local climate agenda that gradually became broader in scope, more accelerated, operational and inclusive in policy design and operations (Hofstad et al., 2020b). Today, Oslo exercises climate leadership within an enabling national context marked by relatively high political aims, and institutional and economic backing, acting also at the global level, through engagement and membership in various trans-local and transnational networks and projects.

These empirical findings prompted us to add new codes to capture the complexity in leadership strategies and the relationship between them. And it intrigued us to search for theories capable of capturing the full breadth of climate leadership and to explore their analytical relevance and limitations when applied to urban *climate* leadership.

Developing a theoretical framework for city climate leadership

Our search for relevant theories started by a scoping of articles identifying contemporary public leadership theories (Anderson & Sun, 2017; Bass, 1998; Bryant, 2003; Day & Antonakis, 2012; Van Wart, 2013b). In this literature, strong attention is devoted to *transformational* and *transactional* leadership denoting visionary and charismatic leadership, on the one hand, and strategies of 'carrot and stick', on the other. We argue that this conceptual pair denotes relevant features also when studying the leadership in and of cities. However, when *climate* leadership holds centre stage, these perspectives do not sufficiently capture the kind of facilitative and synergetic leadership required to mobilize a multitude of diverse actors to create substantive political, economic, technical, social and institutional change. A third perspective highlighted in the public administration literature is *instrumental* or *pragmatic leadership* theory focusing on expert knowledge and administrative structures as mechanisms for ascertaining sound institutions (Anderson & Sun, 2017; Antonakis & House, 2014). In addition, continually stronger attention has been devoted to more collaborative and collective-oriented leadership theories: Integrative (Crosby & Bryson, 2010; Page, 2010); facilitative, collaborative, public value oriented (Van Wart, 2013b); shared and distributive (Anderson & Sun, 2017) to mention the most prominent contributions. These theories pinpoint different aspects of collective-oriented leadership, which we propose to label, *co-creational leadership*. This concept emphasizes the importance and transformative potential of the meeting between leader and follower. Processes of co-creation repeal or significantly reduces leader-follower roles as the main focus is on collaborative interaction between internal *and/or* external constituents and on a joint and constructive exchange of ideas, resources and competences. The main attributes of a co-creation process are to produce public value through incremental or innovative step-changes leading to new understanding of the task at hand or new ways of problem-solving (Torfing et al., 2016, p. 8). In this regard, co-creational leadership mirrors and gives instruments capable of navigating and mobilizing an array of relevant and concerned actors in a polycentric and multilevel governance system.

In sum, these four strategies of public leadership open for exploration of the role of leadership in different institutional contexts. We explore each of the leadership theories and related strategies below with emphasis on identifying their unique contribution to urban climate governance, their limitations and the potential interdependencies between them by exposing them to the climate leadership performed by the city of Oslo.

Transformational leadership

Transformative leadership appeals to ideals and collective interests beyond immediate self-interest of the leader by envisioning a desirable future, articulating the pathway to goal attainment, setting examples, securing high standards of performance, showing determination and confidence, and stimulating innovation and creativity (Bass, 1998, p. 11; Moynihan et al., 2011, p. 147).

Judge and Piccolo (2004:, p. 755) highlight four dimensions as characteristic for this mode of leadership:

- *Charisma/idealized influence* by displaying conviction and appealing emotionally to followers
- *Inspirational motivation* by articulating an appealing and inspiring vision that motivates followers and provide meaning for the task at hand
- *Intellectual stimulation* by challenging assumptions, taking risks and encouraging followers' creativity
- *Individualized stimulation* by attending to each follower's needs and acting as mentor

In light of responses to climate change, this may involve to convince relevant and concerned actors of the urgent need for adopting bold climate goals, change behaviour, spark innovation and willingness to move towards climate transformation. This may in turn lead to a form of non-obligatory climate-conscious self-governance among multiple types of actors (Sørensen & Triantafillou, 2009). They buy into the idea and vision of climate transformation and alter their actions and institutions accordingly without being directly instructed to do so.

Transformational leadership strategies in Oslo

During the last decade, the city of Oslo has been governed by political coalitions that support and pursue ambitious climate goals and policies; policies that were reinforced when a new red-green coalition took office in 2015 based on a political platform where climate change is high on the agenda (City Government, 2019, p. 3):

> Oslo will be the world's first emission-free city in 2030. Climate measures will not be carried out elsewhere, at another time, and by someone else, but by us here and now. A greener city is better to live in, with cleaner air, better public transport and safer school roads.

This political vision communicates two core leadership messages. First, Oslo's climate leadership shall be characterized by a substantive correspondence between climate goals and climate action on the ground (City of Oslo, 2018). Second, the aim of transforming Oslo in response to the challenge of climate change has potentially positive added-value in terms of bringing better health (reduced pollution), upgrading and modernizing the city (City of Oslo, 2020a; interview climate manager; public presentation[2]). These visions are, among others, reflected in the city's *climate policy communication strategy*, which has a stated aim to alter behaviour among citizens and private actors by exposing them to motivating stories of how to live and act climate-friendly (Klimaoslo.no). Thus, Oslo's climate policy vision communicates a strong will to succeed at the same time as it shows how the city as a community can get there collectively. Leadership displays conviction and provides inspirational motivation. Our interview material includes several examples of non-obligatory climate change initiatives among both public entities and private companies related to experiments in energy-plus buildings, innovative green mobility practices and compact city development (cf. Vedeld et al., forthcoming).

The meeting between transformational leadership theory and practice

When applying transformational leadership theory to diverse situations where the leader's goal is not only to motivate and reach her/his own internal employees, but also an external community of actors, interesting and critical aspects of city climate leadership comes to the foreground. Private business actors note that their motivation for developing new green practices, are in part internal business sustainability policies,

in part the broader global climate and sustainability agendas. Thus, local businesses do not necessarily act climate-friendly as a direct reflection of Oslo's clear climate policy. Rather they share the agenda and are willing to contribute for a mix of reasons. This illustrates the polycentric character of the climate change governance – climate ambitions and climate action emerge in part from an array of self-governing initiatives by private businesses and civil society actors complementing the city's own policies and reach.

The Oslo example further points to a tension between different aspects of transformational leadership as understood in theory. Namely inspirational motivation seeking to create broad-based self-governance among citizens and private actors, on the one hand, and intellectual stimulation on the other, which is signified by challenging ingrained assumptions and taking risks. Oslo's leadership articulates clear stance regarding the need for restrictions on car use, despite this being highly conflict-ridden. Both the Governing Mayor and Vice Mayor for Environment and Transport have promoted this policy despite local resistance and outright protests among citizens and private businesses. In the last local election this resistance even materialized in the creation of a new political party, the 'Popular action against higher toll ring fees' (Folkeaksjonen nei til mer bompenger) receiving as much as 5, 8 percent of the votes (Valgresultat, 2019). The case illustrates how a transformative leadership approach with an intent and will to actually pursue climate transformation risks meeting resistance among specific actors and undermine the ability to create broad-based support. The strategy goes from being a harmless vision to a politicized field with potential divisive effects.

Pragmatic leadership theory

The pragmatic leadership strategy emphasizes the importance of internal day-to-day leadership practices in order to ensure organizational coherence, consistency and effectiveness through the integration of e.g. common goals or policies (Antonakis & House, 2014). Inevitably, this involves internalizing and operationalizing goals to concrete, cost-effective institutional practices across departments and entities, budgeted activities, monitoring of progress, reading the organizational environment, attracting the necessary competence and reforming the organization to ensure attainment of defined goals (horizontally and vertically). To perform pragmatic leadership consequently requires a deep knowledge of the social fabric and the relevant internal parties which have a stake in the problems and the economic and technical issues associated with the problems and their solutions (Anderson & Sun, 2017, p. 80). Internal involvement of actors or employees in management, to this end creates coherence and internal agreements to common goals. Aligning entities to common goals and purpose creates an ability to add necessary resources, if required, and compensate for deficiencies in the organization or changes in the external environment at the same time as obstacles are removed and path-goal clarifications are given (Antonakis & House, 2014, p. 750).

The primary asset of pragmatic leadership is not emotional arguments and hands-off tactics as in the case of transformative leadership, but rather logical argumentation directed towards key problem areas and causes that the organization are in control of (Mumford et al., 2008, p. 147). Thus, in a city context, this type of leadership strategy would confer the use of measures directed towards the city organization itself and the assets it possesses or controls (buildings, public transport and infrastructure) through hands-on measures. Furthermore, pragmatic leadership relies strongly on in-house expertise as a main problem-solving device and is therefore especially attainable in stable, high-capacity settings (Mumford et al., 2008).

Pragmatic leadership strategies in Oslo

Principles and practices of pragmatic leadership reveal themselves at the core of Oslo's climate governance related to ways and means to secure correspondence between the city's climate goals and administrative policies and practices. Oslo's pragmatic leadership is exposed particularly through two leadership instruments or pillars: the adoption of a *climate budget*, which serves as a 'governance skeleton' for assembling and aligning entities for common climate action, and the creation of a *Climate Agency* to coordinate across different

departments and agencies. The Agency was founded in 2016 and houses 30 climate experts given a pivotal role in the day-to-day handling of the climate budget through internal coordination, knowledge development, monitoring and reporting. The Agency facilitates regular meetings and dialogues across dispersed departments and entities to secure internal coherence, adjustment and further improvement of climate measures.

The climate budget is an integrated part of the traditional municipal financial budget, managed by the Finance department together with the Climate Agency. It institutionalizes and operationalizes the city's specified climate goals of reducing CO_2- emissions by 65 percent by 2025 and by 95 percent by 2030 into concrete governing instruments and measures across sectors (City of Oslo, 2020b). These measures are specified in the letters of assignment approved by the City Council and defines key tasks and responsibilities of underlying agencies and entities (City of Oslo, 2020c, 2020d). The climate budget process also ensures regular reporting on progress and the search for new measures. Our interviewees directly involved in the design and/or implementation of the climate cudget judge it to anchor tasks, integrate climate policies horizontally and vertically in the administration and clarify responsibilities. The following quote from one of the architects of the climate budget summarizes their views:

> We are about to make the transition from an intention to decentralize tasks and responsibilities to actually make it happen. (Administrative Manager A)

The integration of climate goals and measures into the traditional financial budget, makes it obligatory for administrative managers to adhere to them. Hence, it works as an internal device for spurring climate action across sectors supported by the Climate Agency as an internal driver of implementation.

The meeting between pragmatic leadership theory and practice

An interesting insight when exposing the pragmatic leadership strategy to climate change practice is that the city controls neither the content nor a wide share of the GHG emission reduction activities needed to fulfil the climate budget aims. For example, in order to reduce car usage and emissions from transport, the city is dependent on infrastructure investments, toll ring restrictions and altered citizen behaviour, representing policy areas where other public authorities or citizens themselves are key to goal attainment. Additionally, our interviewees, politicians, administrators and business actors alike, all report of calculation problems tied to the climate budget. Statistical material on emission indicators are produced at the national level and reported only with a two year lag in the numbers provided, at the same time as the way in which the National statistics measures GHG emissions has been altered on several occasions, making it hard for the Climate Agency to provide comparable emission figures over time. Hence, as put by one of our interviewees, 'the strength of the (climate budget) tool is more anchorage than content' (Administrative Manager B). The main weakness of pragmatic leadership theory for explaining city governance responses to climate change is that, counter to the theoretical expectation, the resources and activities required to secure goal attainment is only to a minimal extent controlled directly by the city itself.

Transactional leadership

Transactional leadership, to this end, can be used to explain other aspects of interactional leadership than do pragmatic and transformational leadership. It denotes in particular leadership strategies that stimulate and motivate the self-interest of followers by setting rules and/or offering rewards in order to obtain agreements on goals (Bass, 1998, p. 10; Moynihan et al., 2011). This may involve either soft, nudging measures, or harder restrictions and punishment. Transactional leadership refers to the *exchange relationship* between leader and followers.

Transactional leadership, in theory, proposes that it pays to act according to (climate) policies and measures, but bites to act contrary. Judge and Piccolo (2004, p. 755) highlights two dimensions that are particularly relevant in the performance of transactional leadership:

- *Contingent reward* by clarifying expectations and establishing rewards for meeting these expectations.
- *Management by exception* by taking corrective action on the basis of the results of leader-follower transactions

Active management by the leader involves monitoring behaviours; anticipating problems and taking corrective action before the behaviour have caused serious problems (Judge & Piccolo, 2004, p. 756).

Transactional leadership strategies in Oslo

The climate leadership performed by the city of Oslo includes several examples of transactional leadership. A climate and energy fund managed by the Climate Agency works as a financial incentive to stimulate and reward projects and actions that reduce Oslo's GHG emissions and streamline energy use.[3] The fund provides support to private firms, local communities and private house owners in their transition to more climate-friendly technologies. Thus, the fund is an example of a contingent reward leadership tool. In addition, the Climate Agency updates and adjusts the aims and scope of the climate fund occasionally dependent on the development of GHG emissions from various sources. Hence, the climate fund is also an example of management by exception.

Another example of transactional leadership is reflected in the city's recent introduction of soft regulation measures to alter the climate footprint of urban development plans and projects (City of Oslo, 2020d):

> In any plan and building permit, the climate consequences will need to be assessed and outlined (…) We shall evaluate whether the applier has reflected on the climate consequences of their project (Administrative Manager C)[4]

Such climate criteria have been introduced also in the city's new procurement rules aimed to stimulate consideration of potential climate effects among the city's business partners that provide services to or engage in city-initiated procurements or projects (City of Oslo, 2017; 2019a, 2019b). Political and administrative leaders thus signal that they put considerable weight on climate impacts when doing procurement of goods and services and judging urban project proposals. Input from the private sector, the R & D community, national government and municipal entities contributed to developing the new planning and procurement criteria, underlining exchange and transactional interactions as a mechanism of the city's leadership (City of Oslo, 2018).

The meeting between transactional leadership theory and practice

The city of Oslo frequently corrects or changes climate guidelines, criteria and funding schemes as part of their overall climate-governing regime in response to external concerns. However, these corrections and alteration of practices by the city itself are constrained by national-level regulations, as well as by existing infrastructures and technologies that are outside the control of the city. Notable examples are physical artefacts as roads and technical installations, public and private technological systems and the economy of private companies and dwellings. According to our interviewees within the public administration, such structures and practices are embedded in existing institutions that take time to change and engage a wide array of actors.

Co-creational leadership theory

A fundamental challenge for co-creational leadership is to facilitate and convene interaction and collaboration among relevant and concerned actors in collaborative processes, platforms and networks and bring out the attributes of collaboration (Weber & Khademian, 2008). Co-creation brings in the potential synergies and public value evolving from the collaboration between relatively autonomous, yet interdependent public and/or private actors. In our context, these constitute the relevant and concerned actors required to resolve climate change as a complex, collective and unruly problem through co-initiation, co-design and co-

implementation of plans, policies or measures (Sørensen & Torfing, 2019; Stoker, 2019; Torfing et al., 2016; Vedeld et al., forthcoming).

Contributions to co-creation literature propose the following key attributes of co-creational leadership (Anderson & Sun, 2017; Ansell & Gash, 2007, 2018; Hambleton, 2019; Sørensen & Torfing, 2018; Torfing et al., 2016; Torney, 2019; van der Heijden, 2019; Wang et al., 2014; Weber & Khademian, 2008; Wurzel et al., 2019):

- To act as *collaborative capacity builders* to create a culture for interaction and collective problem solving by performing roles as convenors, facilitators and brokers that ultimately may challenge state-region-local hierarchies and break out of sector 'silos'
- To enable *institutional co-design* of arenas and platforms defining the structure and sets the basic ground rules under which collaboration and interaction take place
- To create an atmosphere of *mutual trust*, enabling sharing of ideas and knowledge, creating commitment, and providing fertile ground for risk-taking and experimentation
- To stimulate an *iterative practice* by developing, adjusting and correcting policies and resolving dilemmas or conflicts.

Co-creational leadership strategies in Oslo

Elements of the leadership performed by the Climate Agency of Oslo mirrors key dimensions of co-creational leadership presented above. The importance of building interactional relationships and collaboration across internal institutional boundaries over time is underlined by a variety of leaders within the Climate Agency: 'I think this is all about building relations, to build good relations to people have become our agenda' (Administrative Manager D). Such low-threshold, informal relations enhance according to our interviewees mutual trust. Relation-building indirectly strengthens goal attainment because trust facilitates the will to act for some shared purpose.

Furthermore, public leaders engage in a wide variety of networks and platforms for policy learning and influence. One notable example is the city-initiated 'Business for Climate Network' encompassing approximately 130 firms. The network is an arena for information exchange and multi-way dialogue between politicians and administration, on the one side, and business actors on the other. Several business informants describe how they engage in developing Oslo's recent climate strategy, testing of new procurement rules, developing specifications for the climate fund, specifying new regulations and testing and developing new technologies (zero-emission buildings, electric or automatic vehicles/buses). Additionally, more informal collaborative platforms are formed jointly by private and public actors to solve acute city development challenges, but also to test and experiment new solutions. In addition, administrative officials and politicians take an active part in transnational city networks, reported as an arena for learning, testing of ideas and developing common international approaches to climate action, such as C40 Cities, CNCA and Eurocities.

The meeting between co-creational leadership theory and practice

Interestingly, the practices of co-creational leadership in Oslo point towards an interdependency between the four leadership strategies - there is a two-way or multi-way interaction and integration between these leadership strategies in form and function when exposed to the challenge of operationalizing pathways towards climate transformation. Oslo's clean construction initiative is an illustrative case in point. Machinery used at construction sites represents high GHG emissions, being mainly diesel-based, and provides great potential for reducing CO_2, local air pollution and noise (DNV-GL, 2019, p. 1). To transform a construction process and site into a zero-emission activity is, however, a complex and demanding challenge dependent on a broad set of leadership strategies. The city of Oslo thus bundled several leadership strategies into one combined, problem solution-oriented approach: pragmatic leadership provided stringence and allocated

responsibility internally (through the climate goals and climate budget), transactional leadership contributed to build a predictable framework (procurement strategy with climate criteria), transformational leadership formulated a joint, upscaled vision (e.g. through an agreed C40 declaration across many global cities), and co-creational leadership built and maintained collaborative processes with stakeholders capable of unleasing new knowledge, technolgies, financial resources and new institutional capabilities.

Lessons: the application and explanatory reach of the four leadership strategies

Each of the four leadership strategies explored from public administration scholarship contains concepts capable of giving nuanced characters to urban climate leadership and the role it may potentially have for mobilizing a multitude of relevant and concerned actors towards decarbonization and city climate transformation. The Oslo case zooms in and illustrates how public leadership employs diverse and hybrid mixes of these leadership strategies and instruments for different purposes, types of interventions and institutional contexts. City climate leadership is as such not only about mastering and adjusting dimensions of each of the four leadership strategies chosen for our study in diverse settings, but also about deciding when and how to use skills or selected instruments from each of them and seek to create synergies.

The analysis further underscores and detail how each leadership strategy in isolation is a necessary, yet insufficient approach to city climate leadership. This raises attention to important conditions, dilemmas and challenges for the practice of 'hybrid mixes' of city leadership and urban climate governance.

First, the challenge of striking the right balance between building inclusive visions on the one hand, and challenging in-grained assumptions and daring to take risks on the other. When operating in a setting where public leadership is dependent on voluntary action from citizens and private companies to reach climate goals, this balance becomes especially acute as cities are political organizations that depend on popular support. Citizen's and companies' place-based traditions, identities, preferences and behaviour vary across many dimensions. While a majority of Oslo's population supports the broad city climate goals, some do not embrace the climate agenda and want to maintain, among others, low-density living and/or the use of own cars in their private or professional life (Vallance et al., 2011). To perform leadership involves a sensitivity to people's tolerance for change and possible reactions to policy proposals (Hambleton, 2019). Leaders who pay little or no attention to the city's socio-cultural landscape risk losing popular support and counter-productive pursuit of goals and measures.

Second, while the integration of climate goals and actions across municipal entities leveraged by climate experts and internal collaborative instruments can make municipal bodies abide to expectations, the Achilles heel of the system, however, is that effective polycentric urban governance depends in a major way on external actors for successful transformation. Internal knowledge and expertise and capacity are by far not enough. City climate leadership is dependent on a set of actors, their ideas, knowledge, and resources, for effective co-governance.

Third, pathways to climate transaction are also constrained by socio-eco-technical conditions and changes in the material world represented by roads and energy infrastructures, as well as existing socio-institutional and regulatory contexts at national level. Such pathways also depend on the activities and willingness of significant or concerned private and civil sector actors - as well as other regional and national level public actors - for attaining local climate ambitions. This calls for a broader perspective encompassing also the place-based and multilevel context of transactional relationships (Bulkeley, 2013; Hambleton, 2019; Loorbach, 2007; Smith et al., 2010). Transformation of these structures is often out of synch with the implied tempo of the city's climate transformation ambitions. Local leadership and relationships are strongly conditioned by decisions and actions at regional, national and international level.

Finally, collaborative governance research often portrays co-creation as an alternative and substitute to traditional, bureaucratic or pragmatic steering and governance. In the early days of governance theory one often spoke about a shift *from* government *to* governance (Peters & Pierre, 1998; Rhodes, 1996).

More recent contributions within the paradigm of New Public Governance suggests that co-creation can transplant authority and regulation and address the fallacies of the hierarchically oriented Weberian bureaucracy, and also complement markets and public-private partnerships inspired by New Public Management (Ansell & Torfing, 2016; Torfing et al., 2016). However, our study shows how co-creation is dependent on the same leadership structures and practices that it is supposed to be an alternative to. Thus, our findings suggest that co-creation is a necessary avenue for resolving complex public problems, however, it is not a sufficient alternative to more hierarchy-oriented planning and regulations or market-inspired transactional compacts. Urban climate governance is about performing a kind of integrative or hybrid form of collaborative leadership (Heikkinen et al., 2019; Visseren-Hamakers, 2018, p. 1392) drawing on a mixture of leadership strategies strengthening the capacity for orchestrated action and inter-action (Hölscher et al., 2018). Co-creational climate leadership flourishes when it is provided direction through ambitious climate goals, supported by regulations and government funding sources, and there is a shared awareness and willingness co-create new innovative practices and contribute to climate-sound pathways.

Conclusions

Observing the variety of intertwined leadership roles and instruments being applied in diverse institutional settings and among different constellations of public and private actors, suggests that we as scholars need to combine leadership theories in efforts to explain city climate leadership and urban climate governance. Public leaders use a combination of strategies and these strategies often mutually reinforce and depend on each other. Future research should gain a yet deeper understanding of when and how synergies can be created between various leadership theories and between leadership theory and the exercise of urban climate governance, accepting that cities and their networks are units within a polycentric system.

Notes

1. For more information: https://www.oslo.kommune.no/politics-and-administration/green-oslo/international-cooperation/#gref
2. Presentation by the Climate Agency, City of Arendal, August 2017
3. https://www.oslo.kommune.no/etater-foretak-og-ombud/klimaetaten/#gref
4. The Norwegian Planning and Building Act permits private actors to propose detail land use and development plans to the city council.

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