Agenda-setting and policy leadership for municipal climate change adaptation

Nina J.L. Rogers [*,1], Vanessa M. Adams [2], Jason A. Byrne [3]

School of Geography, Planning, and Spatial Sciences, University of Tasmania, Hobart, Australia

ABSTRACT

Climate change presents a pervasive global threat to billions of people as well as ecosystems. Global mitigation policy failures mean we must now urgently adapt to projected climate impacts. While local government is expected to play a vital role in climate change adaptation, major breakdowns are occurring in local governments' ability to implement adaptation responses. Studies point to the importance of two key factors underpinning successful municipal climate change adaptation – supportive leadership and an authorising environment for adaptation. But few studies provide in-depth analysis of these factors and how they play out in practice. This paper reports the results of research addressing this knowledge gap, drawing on analysis of leadership in four Australian local governments (municipal councils). Twenty-five local government elected officials, executive leaders, and staff required to operationalise leaders' decisions were interviewed. Interviews examined leaders' role and influence in climate change adaptation and their receptiveness to mainstreaming. Results show that whether leaders consider climate risk on their policy agenda is highly variable and subject to factors such as: public mood and community expectations; issue salience; the presence of dedicated policy entrepreneurs to champion a response; and focusing events that heighten the urgency of adaptation. We identify three concrete opportunities to mainstream municipal climate adaptation responses: enhance issue salience within leaders; leverage networks of influence; and strengthen formal systems of municipal climate governance.

1. Introduction

Anthropogenic climate change presents a pervasive threat to billions of people and to ecosystems in almost every region across the globe (IPCC, 2022a). Even with a highly ambitious and decisive mitigation response, a level of locked-in change in the climate system will give rise to severe and compounding climate impacts, some irreversible, and many with catastrophic consequences (IPCC, 2022a, UNEP, 2021). The global community urgently needs to plan for, and adapt to, a changing climate. Complex multi-level governance arrangements have been created to negotiate and assign responsibilities for adaptation (OECD, 2010). Within these arrangements, local government (e.g., municipal councils) has been attributed a key role (Measham et al., 2011, Nalau et al., 2015), particularly given climate impacts are place- and context-specific, requiring local responses (Naess, 2019). As the level of government closest to the community, local government can provide crucial support to communities to plan for climate change impacts (Castán Broto and Bulkeley, 2013). Local governments must also ensure their own assets, operations, and service delivery are robust to a changing climate (Tonmoy et al., 2018).

Internationally, local governments are responding to climate impacts via the development of municipal adaptation policies and plans (Araos et al., 2016, Baker et al., 2012), and mainstreaming of climate change considerations across their operations (Braunschweiger and Ingold, 2023, Uittenbroek et al., 2013). At times these efforts respond to international and (sub)national legislative and policy frameworks prescribing an adaptation role for local government (Salon et al., 2014). However, increasingly local governments are voluntarily taking a role in adaptation where there are inadequate national mandates (Simon Rosenthal et al., 2015, Wright, 2021).

Climate adaptation must be accommodated on already crowded municipal policy agendas (Simonet and Leseur, 2019) and studies have

found municipal adaptation efforts are often ad hoc, reactive, and at times maladaptive (Cerrada Morato, 2024, Olazabal et al., 2021). Myriad barriers to adaptation exist (Aylett, 2015, Wamsler et al., 2020), in particular lack of leader support alongside capacity to adapt, contributing to the adaptation planning-to-implementation gap (documented in Burch, 2010, Fünfgeld et al., 2023, Lawrence et al., 2015, Pasquini et al., 2013, Simonet and Leseur, 2019, amongst other insightful contributions). An expanding scholarship encourages the mainstreaming of climate change concerns across (municipal) policy and practice, as a critical pathway to closing the implementation gap and accelerating adaptation outcomes (e.g., Baack et al., 2024, Braunschweiger and Pütz, 2021, Kok and De Coninck, 2007, Rauken et al., 2015, Runhaar et al., 2018, Wamsler and Osberg, 2022).

We define municipal climate change mainstreaming as a process of integrating climate change considerations into the decision-making, policy, and operational functions of local government (adapted from Aylett, 2015, Bleby and Foerster, 2023, Pasquini et al., 2015). This includes a municipal council's vision statement, budget and policy planning processes, project management and reporting tools, intra- and inter-organisational working structures (vertical and horizontal), and human resource allocations (IPCC, 2022b, Wamsler and Osberg, 2022). The objective of mainstreaming is to challenge and change established approaches to (municipal) policy and operations, as well as organisational cultures and mindsets, so that climate change comes to be understood and normalised as a central, cross-cutting issue, rather than peripheral (Bleby and Foerster, 2023). Mainstreaming can be viewed as a process of 'gradual reform rather than frantic revolution' (Picciotto, 2002 p.323) that occurs along 'a spectrum of ambition and activity', and that involves 'iteration and continuous improvement' (Bleby and Foerster, 2023, p.14).

Mainstreaming municipal climate change adaption requires resolving barriers, including issues of organisational *authority* to adapt and *capacity* to adapt (Rogers et al., 2023, Fig. 1a). *Authority to adapt* refers to the authorising environment – or mandate – from national or sub-national government, or from local government leaders, for adaptation action by a municipal administration. *Capacity to adapt* refers to access to the resources, professional networks, and supportive organisational systems and cultures, that enable local government adaptation (Rogers et al., 2023). Adaptation capacity reflects the *potential* for adaptation, noting that even when the capacity to adapt is high, adaptation is neither automatic nor inevitable (Ford and King, 2015). Ford and King (2015) argue that in addition to capacity, an organisation must be 'adaptation ready'; that is, its 'human systems are prepared and ready to do adaptation' (Ford and King, 2015, p.505). We view this as akin to the *authority to adapt* (Fig. 1b) and whether a municipal council's leadership is open (minded) and receptive to placing and prioritising adaptation on the policy agenda; without which municipal adaptation mainstreaming is unlikely.

A lack of support from local government leaders can be a crippling barrier to municipal climate change adaptation efforts (Hjerpe et al., 2015, Rogers et al., 2023), even in the presence of substantial municipal capacity to adapt (Birchall and Kehler, 2023). Yet, relatively few studies have deeply examined how issues of leadership affect municipal climate adaptation mainstreaming (e.g., Aylett, 2015, Birchall and Kehler, 2023, Bulkeley, 2010, Pasquini and Shearing, 2014, Picketts, 2018). Fewer still (e.g., Hjerpe et al., 2015, Orderud and Kelman, 2011, Williams et al., 2017) have directly engaged municipal elected (political) and executive (administrative) leaders to gain critical insight into how they
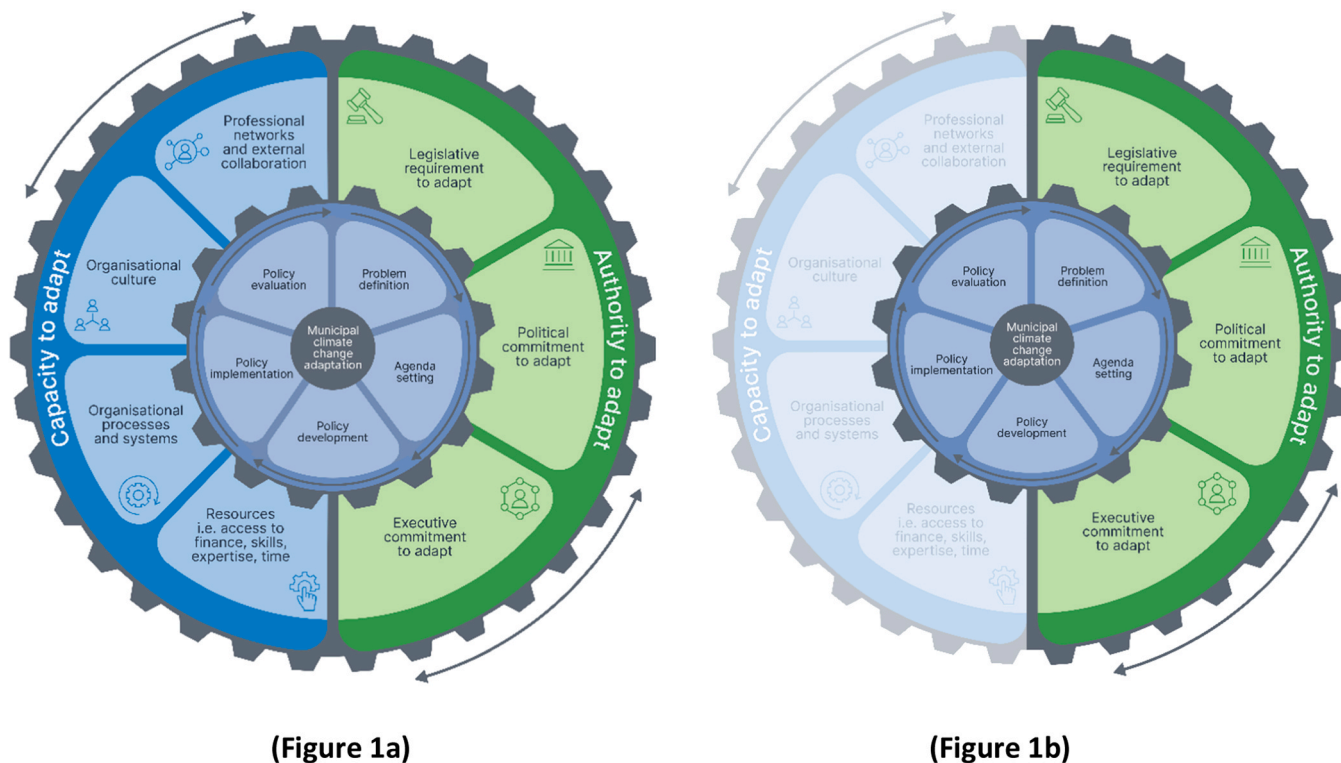

(Figure 1a)   **(Figure 1b)**

Fig. 1. a. Conceptual framework of the factors that shape municipal climate change adaptation (reproduced from Rogers et al., 2023), and Fig. 1b. highlights 'Authority to Adapt' and its constituent parts as the focus on the research reported in this paper. The analogy of mechanical cogs turning and interacting represents the configuration of factors that inform whether climate adaptation progresses on the municipal policy agenda. The outer cog indicates that municipal climate adaptation is a function of two overarching factors – authority to adapt (in green) and capacity to adapt (in blue) – with their constituent parts (the wedges of the outer cog) (see Fig. 1a, reproduced from Rogers et al., 2023). The wedges are not exclusive to either of the two overarching factors, but for the purposes of this framework reflect common associations revealed through the literature. The wedges of the outer cog may influence either (or both) authority to adapt or capacity to adapt. The empirical research reported in this paper focuses on the right hand (green) side of the framework (Authority to adapt) and the preliminary stages of the policy cycle (inner cog, Problem definition and Agenda-setting) (see Fig. 1b, adapted from Rogers et al., 2023).

understand, frame, and prioritise climate risk and adaptation amongst the many issues with which they must contend. Responding to this knowledge gap, this paper reports the results of research examining the role of elected and executive leaders in the climate adaptation response in four Australian local governments (termed municipal councils), and how leaders think about and influence the advancement of climate adaptation within their organisations. Specifically, we address two research questions: (i) What motivates or hinders the commitment of municipal leaders to progress climate adaptation on the municipal policy agenda? And (ii) how can municipal leaders be supported to mainstream climate adaptation across municipal governance, policy, and practice?

2. Theoretical framework

In this paper we focus on the preliminary stages of the policy cycle – *problem definition* and *agenda-setting* – as central considerations of leaders' 'readiness' for municipal adaptation mainstreaming. We employ Kingdon's Multiple Streams Approach (MSA) (Kingdon, 1984) to support our analysis. MSA comprises three distinct components or 'streams' that equip the researcher to examine and explain: how policy problems are understood and defined (*Problem Stream; P1*); whether a problem is added to the policy agenda within a political system (*Politics Stream; P2*); and how a problem is matched to available policy solutions for deliberation and decision (*Policy Stream; P3*) (Arabloo et al., 2018, Henstra, 2010) (Fig. 2). MSA also introduces the idea of the *Policy Window (P4)*, planned or unplanned, which opens fleetingly in either the Problem or Politics stream. This window of opportunity can facilitate convergence of the three streams toward a policy response (Cairney and Jones, 2016, Zahariadis, 2016). Timing to take advantage of the policy window is vital for effective policymaking (Kingdon, 1984, Zahariadis, 2016), and this process can be facilitated by a *Policy Entrepreneur (P5)*; a well-informed and well-connected insider whose knowledge, tenacity, and sense of agency helps a policy come to fruition when a policy window opens (Cairney and Jones, 2016).

Zahariadis (2016)'s extension of MSA overlays Kingdon's five components with the concepts *Perception, Potency, Proximity,* and *Power* operational throughout the streams. *Perception* (P6) refers to the subjective understanding or interpretation of an issue, and whether it is recognised as a problem, whether it is deemed important, and why. *Potency* (P7) refers to the intensity or severity of consequences of a given issue (e.g., location specific climate change impacts). Generally, the more potent an issue, the greater salience it will have on the policy agenda. *Proximity* (P8) refers to the geographic or temporal closeness of the impacts of an issue. Decision-makers are more likely to pay attention to issues seen to have a more direct impact on, for example, local community safety, local prosperity, organisational objectives. *Power* (P9) refers to the ability to manipulate, persuade, or prevent issue placement on the policy agenda. Some individuals/groups have greater ability to make their voices heard and to persuade decision-makers that their issues are worthier of (local) government action (definitions adapted from Zahariadis, 2016, p.7 and p.8). Zahariadis (2016) suggests that interactions between, and changes in, any of these four components will lead to movement of an issue on or off, up or down, the policy agenda (assuming all else remains constant). We combine Kingdon's five original components and Zahariadis' subsequent four Ps to explore problem recognition and definition, and agenda-setting specific to municipal climate change adaptation (Fig. 2).

3. Research methods and study location

To answer our research questions we employed a cross-sectional qualitative research design (Bryman, 2016), examining four small- and medium-sized municipalities (hereafter SMMs; noting the absence of universally agreed population thresholds for municipalities labelled as SMMs). SMMs are often overlooked in municipal adaptation research (Buschmann et al., 2022), and yet, they commonly experience greater resource constraints than their large- and mega-city counterparts (Häußler and Haupt, 2021, Kronvall et al., 2023) and can face devastating climate change impacts (Fünfgeld et al., 2023). SMMs experiences
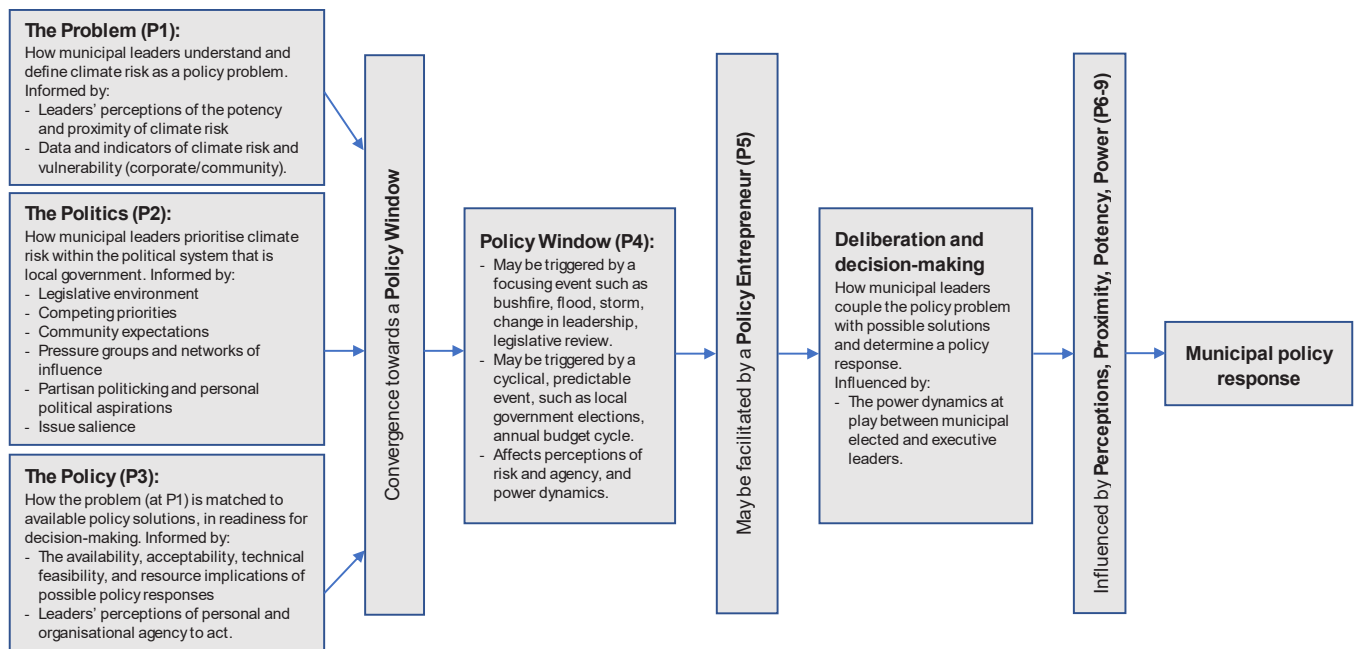

Fig. 2. Theoretical framework: connections and interactions between the 9Ps of the municipal policymaking process. This figure demonstrates how this research has considered and combined Kingdon (1984)'s five core components of the Multiple Streams Approach and Zahariadis (2016)' additional four considerations for agenda-setting (i.e., Kingdon - Problem (P1), Politics (P2), Policy (P3), Policy Window (P4), Policy Entrepreneur (P5), and Zahariadis - Perceptions (P6), Proximity (P7), Potency (P8), Power (P9)). The interactions between the 9Ps inform and influence the authorising environment for municipal climate change adaptation and decisions on the municipal policy response.
Figure adapted from Jones et al. (2016 p.15).

in adaptation planning and implementation, and associated barriers and enablers, remain poorly understood (Fila et al., 2024). Further, SMMs are increasingly recognised as important participants in a 'second phase of adaptation' (Fünfgeld et al., 2023) seeking to apply lessons learned from frontrunners, early adopters, or extensive adaptors (cf. Araos et al., 2016, Kern et al., 2022).

The four participating municipal councils are located on the southern island state of Tasmania, Australia. Each has a population of less than 75,000. They were selected to offer a cross-section of Tasmanian municipal council types (e.g., city; predominantly urban; regional town or developing LGA on the margin of an urban centre; predominantly rural) and differ in their demographic and socio-economic profiles (see Appendix A, online Supplementary Materials). Tasmania is experiencing some climate change impacts faster than other parts of the world (e.g., ocean warming) (Gregory et al., 2023). In recent years, Tasmania has experienced significant bushfire events, a record marine heatwave, prolonged dry periods in 2015–16 and 2019–20, and the worst statewide flooding seen in 40 years (Tasmanian Government, 2024a). The state has an ageing population with higher rates of a range chronic health conditions compared to the national average, and the lowest average weekly full-time wage earnings in Australia (Tasmanian Government, 2023, Tasmanian Government, 2024b). Tasmania's changing climate and socio-economic disadvantage give rise to deep and systemic vulnerabilities within the state's population, atypical of an advanced Western nation.

Each of the four participating councils has formally adopted a climate change adaptation policy, strategy, or plan. They differ in the number of years of adaptation activity, and the continuity and visibility of adaptation efforts under changing leaderships (based on analysis of publicly available documents and council website content). The four councils can each be considered early-stage climate adaptors with limited implementation of their endorsed adaptation policy, strategy, or plan. The names of the participating councils and research participants are anonymised in accordance with Tasmania's strict privacy laws and the home institution ethics approval (Tasmanian Social Sciences Human Research Ethics Committee Approval 23796). Anonymity was essential to gain meaningful insights into the behind-the-scenes realities and challenges of municipal (climate) leadership, decision-making, issue prioritisation, and governance.

The research used interviews. Interviewing is well suited to exploratory research, allowing for detailed and rich insights (Bryman, 2016, Stratford and Bradshaw, 2021). We purposively recruited a sample of interview participants from three key informant groups – elected (political) leaders, executive (administrative) leaders, and key staff required to operationalise leaders' decisions on climate change adaptation for their council. We recruited based on the perceived influence these positions conferred on intra-organisational climate adaptation efforts. A semi-structured interview format (Appendix B) explored participants' commitment to the mainstreaming of climate change adaptation in their organisation. A total of 39 participants were approached for interview; 25 were available and agreed, 14 were unavailable (8 elected, 6 executive). Our final sample consisted of: 14 municipal elected leaders (mayors, deputy mayors, and portfolio chairpersons), 6 executive leaders (chief executive officers and directors), and 5 key staff (managers and officers) (Appendix C). We considered it important to engage key staff to triangulate (confirm or challenge) what we were hearing from leaders. Arguably, leaders' views may not be objective and may over- or under-state a situation, so we engaged staff to gauge an additional perspective on adaptation leadership in their organisation.

Interviews lasted an average of 60 minutes and were conducted from April to July 2022. Interviews were audio-recorded, transcribed, and de-identified ahead of data analysis. We employed thematic data analysis – a method for identifying, organising, interpreting, and reporting key themes within a body of qualitative data (Bryman, 2016, Nowell et al., 2017). Our thematic data analysis combined inductive and deductive approaches, supported by the use of software packages NVivo (Release

1.2) and Leximancer (Desktop 5). An *a priori* coding tree was deductively created in NVivo, informed by the research and interview questions (Appendix B), and the broader literature on climate change adaption mainstreaming. The coding was refined based upon our chosen theoretical framing of Kingdon's Multiple Streams Approach (MSA) and Zahariadis (2016)'s extension of MSA (Fig. 2). Interview transcripts were coded by the lead author. The coding tree and attribution of codes was devised in consultation with, checked by, and agreed on by the whole research team.

We used Leximancer software to provide a grounded, exploratory approach to inductive thematic analysis of the interview transcripts (Fig. 3). Leximancer enables concepts to emerge as properties of the text and may reveal 'unexpected' codes and concepts that a research team could otherwise miss (Angus et al., 2013). Outputs from Leximancer and NVivo were compared to cross-check and validate, adding breadth and depth to the analysis (Fereday and Muir-Cochrane, 2006, Sotiriadou et al., 2014). Leximancer's inductive analysis uncovered a small number of new codes not immediately evident in our *a priori* framing of the research. We added these to the NVivo coding tree.

4. Results

Our interviews revealed a range of factors that motivate and hinder municipal leaders' commitment to mainstreaming climate adaptation on their policy agenda. In this section we use the 9Ps of the theoretical framework (Fig. 2) to situate our findings, with each P at play in municipal decision-making and governance. Interview quotations are included to illustrate the findings. Quotes are coded as having been made by an elected leader, executive leader, or staff, and belong to Council A, B, C, or D as profiled in Appendix A. Additional quotes are summarized against each P in Appendix D. Throughout this section we also highlight, as bracketed comments, key findings from the Leximancer analysis (Fig. 3).

4.1. The problem stream (P1, in Fig. 2)

4.1.1. Perceptions of climate risk

Interviewees expressed high levels of concern about bushfire, flooding, and sea level rise as threats to municipal operations and their community. Potential climate impacts on council-owned infrastructure, particularly municipal buildings, roads, and stormwater systems, were described as the traditional loci of concern. While less frequently cited, interviewees noted that a changing climate would also affect municipal budgets and could place business systems and processes under significant pressure. Interviewees were highly aware of climate risks to their communities, especially financial and mental health impacts, and heightened vulnerabilities for the aged, infirm, and homeless, invoking concerns about 'just adaptation' and the need to support collective welfare. Climate change was recognised as an issue of the *here and now*, not just an issue of the future. The problem of climate risk was mostly considered to be potent and proximate.

> *Climate change could very significantly wipe out our municipality. There is a chance for the whole municipality to be burned out.* (Elected leader, Council B)

> *It's not only the financial costs. It's those societal costs and the anxiety caused by people losing their house or not able to go back into it. It's not liveable after months or years sometimes.* (Elected leader, Council B)

Climate change denial and scepticism were present among some municipal elected leaders. However, interviewees identified that this scepticism is far less openly disclosed now than in the decade prior. In lieu of open denial, the climate sceptics were seen to be running interference and delay in the municipal climate response. Fewer instances of climate denial and scepticism were reported among municipal executive (administrative) leaders, although interviewees observed executive
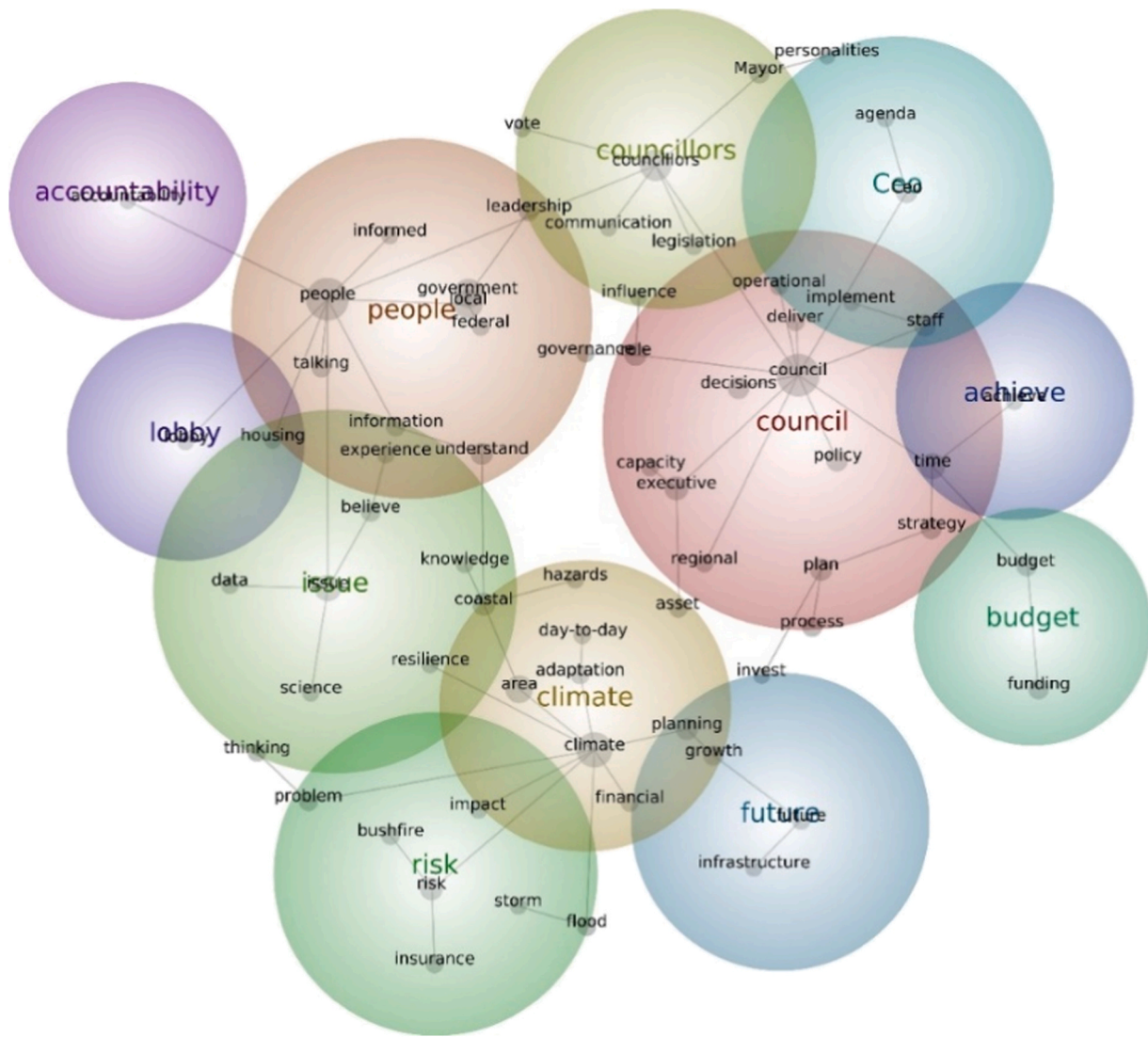
Fig. 3. Leximancer map of dominant themes, associated concepts, and relationships emerging from text analysis of 25 interview transcripts. Leximancer software uses word frequencies and colocation to generate a visualisation of patterns and relationships in text. Nodes represent individual concepts, and the size of the node denotes its relative prominence in the text. Nodes cluster into themes, indicated by spheres where size and colour denote relative importance (from hot red to cool blue/purple). Lastly, nodes are connected by lines that show conceptual relationships.

leaders do not necessarily appreciate the urgency of the issue (low potency).

4.2. The politics stream (P2, in Fig. 2)

4.2.1. The legislative environment for municipal adaptation

Interviewees were asked about the legislative environment for municipal adaptation: the prescribed role (if it exists and in what form); the assumed role; and the potential future role. A statutory responsibility to consider climate change in local land-use planning and development decisions was consistently recognised by interviewees. This reflects local government's role as a statutory planning authority in the state of Tasmania. Municipal staff pointed to the overarching *Local Government Act* 1993 (Tasmania) and the core function of a municipal council *to provide for the health, safety, and welfare of the community*. Staff described a need to recognise climate change as central to everything local government does, and that interpretation of the *Local Government Act* necessitates, indeed legislates, a municipal climate adaptation response. This view was not expressed by leaders.

To me, if you're responsible for health and wellbeing of the community then it (climate change) simply has to be part of your role. That's all there is to it.
(Municipal staff, Council A)

The absence of framework legislation that clearly defines Tasmanian local governments' responsibility for climate adaptation was seen to enable high levels of discretion in whether a municipal council responds to climate risk, and in what form.

4.2.2. Competing priorities and community expectations

Responding to a question about issue prioritisation, interviewees indicated the term *priority* is highly subjective, person-specific, temporal in nature, and fraught with issues of interpretation. Interviewees describe two types of priorities at play in municipal governance. First were the non-negotiable, must-deliver matters that rise to the top of the list of priorities because a municipal council's responsibilities are defined by legislation or regulation (see cluster of core concepts of *operational, legislation, implement,* and *deliver,* Fig. 3). Interviewees told us the fulfilment of legislated responsibilities is routinely audited and less prone to leadership discretion. Second were the political priorities,

which reflect a process of deliberation and decision-making by municipal leaders about all other (non-legislated) issues brought to council's attention (see cluster *government, people,* and *leadership*, with nearby themes of *lobby*, and *councillors*, Fig. 3). Significant discretion appears at play in the political prioritisation process, informed by the presence or absence of a community mandate for action, as well as municipal leaders' collective and personal perceptions and preferences to progress, delay, or bury an issue.

Interviewees described the sometimes-overwhelming challenge of reconciling needs and expectations for climate action with the many roles, responsibilities, and agendas that municipal councils have. Interviewees described an imperative to focus on *the fundamentals* – colloquially referred to as *roads, rates, and rubbish* – and suggested that a climate response is not a core matter on the municipal policy agenda. Rather, adaptation was typically regarded as something to be addressed 'one-day' when time, resourcing, and inclination permit.

> *The council organization has things that people just wouldn't accept, (for example) saying we're not going to fix potholes, we're not going to pick up rubbish, because we're going to put it (our resources) all into climate adaptation.* (Elected leader, Council B)

Climate adaptation was viewed as an issue of increasing concern to many in the community, in large part owing to the heightened visibility of extreme weather events across Australia and globally (i.e., shifting perceptions of spatial proximity and potency). Yet interviewees spoke of their communities being most vocal about, and demanding council attention to, *every-day concerns*, such as the provision of community services, quality of local roads, and maintenance of public open space, ahead of a municipal climate response. A disconnect is evident between stated perceptions of climate risk as an issue of the *here and now*, but not an issue for councils to address in the immediate term.

4.2.3. Pressure groups and networks of influence

We were told that the lobbying of elected leaders regularly influences municipal policy priorities and political resolve to address climate risk (see the closely linked themes of *people, issue*, and *lobby*, Fig. 3). Interviewees stated that vocal constituents and well-organised pressure groups, representative of a minority of voices, often capture the attention of municipal elected leaders. Pressure groups were seen to be particularly influential in promoting or protecting special interests and had the power to shape municipal decision-making, placing parochial concerns and private benefit ahead of the wider public good (invoking Zahariadis' concept of Power).

> *It is a small number of people that are pretty heavy-handed in their lobbying with elected members, that I think ultimately determine what the budget looks like, how it takes shapes.* (Executive leader, Council D)

Global financial institutions, the (re)insurance industry, and legal sector were seen by interviewees to be taking a keen interest in the management of climate risk. Interviewees expressed opportunity for their insurer to more proactively support councils to understand and manage climate risk. The local government peak representative association (the Local Government Association of Tasmania) was also identified as playing a key role informing municipal councils about which issues should be a priority for attention but provided only limited leadership to councils on climate risk and adaptation, although emerging activity was noted.

> *LGAT has an interest (in climate adaptation). …(But) there's no advice really. Councillors have been pretty much left to themselves. …There's no mandatory training for elected members on that (climate adaptation). … It's really down to individual councils.*
> (Elected leader, Council A)

Interviewees identified that they look to the state and national governments to provide clear messaging as to whether climate adaptation should be a matter for local government concern (see the cluster of *government, local, federal, leadership,* and *governance* concepts in the *people* theme, Fig. 3). Interviewees expressed that both these levels of government have been effectively absent in climate leadership and guidance to local government for the past decade under conservative governments.

> *…council would rather see more federal- or state-led decision-making on it (climate adaptation) that gives a framework for council, rather than have every council try and come up with their own (adaptation) framework and policies all the time. …which is a lot more expensive and a lot more time consuming. …If it starts as a top-down approach through government then it's a lot easier to say 'oh, this is the decision of government, this is how government wants it to go'.* (Elected leader, Council D)

4.2.4. Partisan politicking and personal political aspirations

Partisan politicking was found to affect the handling of climate change adaptation on the municipal policy agenda (see the nexus of *issue* and *lobby*, Fig. 3). Interviewees spoke of party-political lines and personal political aspirations getting in the way of the public interest.

> *They (elected leaders) try not to show their colours, but they are definitely there to appease the parties they aspire to represent* (at a State or Federal level).
> (Elected leader, Council C)

Interviewees revealed that at times, the term *climate change* was actively discouraged or avoided in policy briefings because it is politically divisive. One elected leader disclosed that it costs too much political capital to vigorously push for climate action. Only a few leaders spoke with passionate resolve to ensure adaptation is on the municipal policy agenda.

> *It's about…how much they (elected leaders) have to stick their neck out, considering the political environment. …You only get a certain amount of political capital, both in the community and around the room when you're making decisions…it's when you choose to burn that. And as long as people try to push climate as this big bogeyman issue…it does take a lot of (political) capital and it's why people probably don't take the risk.*
> (Elected leader, Council A)

4.2.5. Issue salience

A key theme that emerged in the interviews was that adaptation lacks salience as a municipal concern, affecting leaders' resolve to address climate risk. Interviewees said that climate change is habitually spoken about in their council and community as an environment issue or a green agenda, and consequently, is delegated to the environment or natural resources officer, or sustainability officer for attention. These staff positions were viewed as having limited influence in the organisational hierarchy. However, the need to consider climate risk and adaptation as core concerns across municipal operations and governance was noted as an emerging area of interest to municipal leaders but is yet to translate into shifts in organisational practice and administrative structures.

> *I feel that the work that is being done (on climate change) is a sort of floating down the bottom (of the organisation) with some more junior officers. I think we need ideally a Chief Sustainability Officer. …So, your CEO, your CFO, and the Chief Sustainability Officer.*
> (Elected leader, Council B)

> *People are starting to work out that if we're going to adapt and change, it's going to be through not having a climate change department as much as having climate change across all departments.* (Executive leader, Council D)

To enhance issue salience, interviewees said that conversations on adaptation needs to engage more with: the financial impact to councils;

insurance cost and coverage; and the impacts on communities arising from the experience of a changing climate, particularly extreme weather events (see nexus of *climate* and *risk* themes, and the nearby concepts *insurance, financial, impact, resilience,* Fig. 3). The co-benefits and opportunities arising from proactive climate adaptation must also be promoted with municipal leaders and among the wider community, to support a mandate for action.

> *It's not just the physical risks, but the financial risks for the organization, the liability that we might be confronted with.* (Executive leader, Council B)

4.3. The policy stream (P3, in Fig. 2)

4.3.1. Leaders' perceptions of personal and organisational agency to act

Personal and organisational agency to enact adaptation responses was said to be low. Interviewees pointed to a lack of confidence within their councils, at all levels, to engage with climate change, and suggested climate science and climate risk materials are often inaccessible and poorly communicated to local government and community (see concepts *knowledge, hazards, risk, science,* and *data* are remote from the themes *council, councillors,* and *CEO,* Fig. 3). Elected leaders recognised their lack of training or expertise on the subject. Interviewees said the part-time nature of municipal elected leadership affects the time they can spend on complex policy matters; asserting that elected leaders have *too much to get their head around* and only limited time to do so.

> *There is a lot of fear and under-confidence about the area. …I definitely think it (climate change conversations) makes them (municipal leaders) feel very uncomfortable, because of that confidence thing. …There's a huge gap there in making it more digestible. …The climate science is complicated.* (Municipal staff, Council C)

4.4. Policy windows (P4, in Fig. 2)

Municipal priorities and work programs were noted to shift rapidly in response to unexpected, focusing events. The experience of storm, flood, or bushfire triggered immediate attention and prioritisation above almost all else in municipal operations, leading to a temporary pause on many day-to-day tasks to enable a municipal emergency management and recovery response. Conversely, the absence of such events over long periods was seen to dampen municipal climate adaptation prioritisation.

> *There hasn't been a storm for six months, hasn't been a fire, hasn't been a massive hazard. We're so busy on day-to-day issues, we've forgotten about it* (climate change).
> (Executive leader, Council A)

Policy windows can also rapidly close in response to unexpected events. The Covid-19 global pandemic was cited as an unexpected event that rapidly altered municipal priorities, demanding substantial resource re-allocation across councils, at the expense of program initiatives such as municipal climate adaptation.

> *We had two and a half years of COVID out of the four years of the (current council's electoral) term. It smashed budgets. It disrupted the organisation. It's really brought us back to the real basics. …It's been a pretty hard slog to get much on the ground happening* (in climate adaptation). (Elected leader, Council B)

Other policy windows that interviewees identified included government elections (at national, state, and local levels) and subsequent changes in elected leaders' focus and policy preferences. A change of municipal executive leadership, particularly a change of a municipal chief executive officer (administrative leader) can also significantly alter the policy focus of a council, as issues become more, or less, salient.

4.5. Policy entrepreneurs (P5, in Fig. 2)

Across the four case councils a small number of municipal leaders and staff were referred to as climate adaptation champions (policy entrepreneurs). Interviewees spoke of the vital role that these champions play in shepherding adaptation through the municipal policy process. Champions were described as passionately committed individuals who variously possessed a combination of topic expertise, tenacity, charisma, and/or a nous for bringing people on the journey to build understanding and commitment to a municipal climate adaptation response.

Interviewees spoke of the tactics used by champions to progress an issue. Interviewees said that elected leaders champion an issue by asking questions regularly, persistently, and oft-times publicly (e.g., in council meetings) about what progress had been made by the municipal administration in moving a priority forward. Such tactics can thwart any intentions of a recalcitrant CEO and/or mayor to delay or bury an issue. Elected leaders are also well positioned to raise community awareness and set the tone for public engagement and conversations on an issue.

Interviewees told us executive leaders can champion issues by using their position of intra-organisational authority, influence, and access, to bridge organisational siloes and enable multi-disciplinary deliberation and collaboration. Interviewees told us that executive leaders are well placed to put an issue on the political agenda for consideration and can mobilise resources to progress an issue. Executive leaders can also create opportunities for dialogue and collaboration with other executive leaders (e.g., in neighbouring councils), and with other levels of government and peak or professional bodies with which they engage.

> *We have a very strong leader. Whatever they are interested in tends to get more of a focus, and because our CEO is pro-climate change it's actually one of our core areas. (The CEO) is essentially a champion within the organisation.* (Municipal staff, Council C)

Municipal staff were also recognised as issue champions, for their tenacity, their ability to build understanding of an issue and facilitate conversations amongst peers, and their ability to upwardly influence in the organisational hierarchy. These attributes are additional to their topic expertise. Most potently, interviewees reported that the combination of mayor and CEO championing an issue at the same time in the same organisation can assure passage of a policy response from the problem recognition stage, through to prioritisation, policy development, and then implementation. In each of these instances though, interviewees reported that the climate adaptation response could stall if a champion left council.

4.6. Deliberation and decision-making in municipal governance (right of centre, Fig. 2)

4.6.1. The power dynamics at play between municipal elected and executive leaders

As stated earlier, the interviews revealed the term *priority* is fickle in application and fraught with subjectivity. A *priority to whom* becomes the pertinent consideration and arbiter of what happens next on the municipal policy agenda. Our interviewees said the process of municipal policy development is beholden to two key figures – the mayor (political leader) and the Chief Executive Officer (administrative leader). Moreover, the strength of the relationship between these two individuals is crucial. Interviewees said that although climate adaptation may be considered a policy priority among a majority of elected leaders and supported by a majority vote for action, this does not ensure a meaningful response. We were told that progress on climate change could be delayed, at times for years, because the municipal CEO (in particular) did not consider it a core priority to progress, despite a vote for action.

Negotiation and coordination between a mayor and municipal CEO were viewed as key determinants of which issues are progressed on the municipal policy agenda and which issues are subverted. Some elected leaders expressed a *laissez-faire* view of this exercise of power by the

mayor and CEO and accepted it as the way things are done. Others expressed discomfort and frustration that key decisions on municipal policy direction are made behind closed doors. Seldom did interviewees demonstrate a willingness to openly question these seemingly entrenched systems.

> *The mayor …They have meetings with the CEO about the flow of things that come to us for decision. …The people with the most time at the wheel have a much easier job getting a message across, finessing the policies… like climate change.* (Elected leader, Council A)

By contrast, executive leaders expressed that a strong relationship between mayor and CEO is essential to setting a clear strategic focus for municipal administrative effort beyond the broad direction established in the chamber of elected leaders (see the nexus of concepts and themes – *mayor, personalities, agenda,* and *CEO,* Fig. 3). Strategic alignment of priorities between the mayor and CEO was seen to enable the municipal administration to operate most effectively and to be nimble in its response to changing circumstance and expectations.

5. Discussion

Our findings show three key factors constrain the receptiveness and commitment of municipal leaders to climate adaptation mainstreaming: (i) an ambiguous authorising environment; (ii) a lack of issue salience; and (iii) high levels of competition for attention and priority on the municipal policy agenda. Returning to the language of Ford and King (2015), these combined factors lead to a lack of 'readiness' in municipal leaders to commit to 'doing adaptation'. Our findings echo recent scholarly contributions from Biesbroek (2021), Braunschweiger and Pütz (2021), Bremer et al. (2021), Runhaar et al. (2018), and Wamsler and Osberg (2022) proposing that climate mainstreaming, as a pathway to closing the implementation gap, must seek to achieve more than a change in (municipal) systems and processes. Mainstreaming must necessarily consider the cultural-cognitive, normative, personal, and political factors that inform policymaking and policy integration (e.g., leaders' perceptions, understandings, logics, values, motivations, aspirations, habits, experiences, conflicts, and risk tolerance) (Wamsler and Osberg, 2022).

What then, are the key opportunities to strengthen leaders' receptiveness (or 'readiness') to adaptation mainstreaming, as a vital contribution to enhance municipal adaptation policy implementation? Our results point to three concrete interventions: (i) enhancing issue salience amongst leaders (affects problem recognition and definition, and issue prioritisation); (ii) leveraging leaders' networks of influence (affects perceptions of potency and legitimacy, and prioritisation); and (iii) strengthening formal systems of municipal climate adaptation governance (creates a policy window and affects agency and power dynamics at play in decision-making). We address these in turn.

5.1. Issue salience: how municipal leaders think, and talk, about a changing climate

Consistent with the findings of research elsewhere (e.g., Funfgeld and McEvoy, 2014, Romsdahl et al., 2019), our research reveals that climate risk and the need for adaptation are yet to be understood and defined by municipal leaders as critical and central municipal concerns (P1, Fig. 2). This affects leaders' resolve to prioritise climate action on the policy agenda (P2, Fig. 2). Leaders must understand that climate risk is a locally relevant issue that will arguably affect every aspect of municipal operations and governance (Alibašić, 2018, Edwards et al., 2019). This requires effective communications and creating opportunities for dialogue about the imperative for municipal climate adaptation (Bromhead and Goddard, 2023).

Salience improves when leaders recognize the immediate implications for their role, organisation, and community. In the context of climate change, greater issue salience can be achieved when a range of

locally-meaningful narrative-frames are mobilised to describe the impacts and disruptions likely to occur (Bromhead and Goddard, 2023, Van Der Linden et al., 2015). These include narratives on the: risks that compounding and cascading climate-related events pose to municipal infrastructure and asset management (Vogel et al., 2020); implications for municipal insurance coverage and costs (Edwards et al., 2019); impacts to municipal service delivery and business continuity (Tonmoy et al., 2018); interference with local land values and municipal property tax revenues (Cradduck et al., 2020, Shi and Varuzzo, 2020); threats to local community safety, health, wellbeing, and resilience (Mossler et al., 2017); and potential legal liabilities arising from council inaction or maladaptation to climate change (Burkett, 2013).

Ultimately, new narratives are needed to depoliticise the issue, challenge the status quo (Robinson and Van Veelen, 2022), and invoke heightened concern about the proximity and potency of a changing climate. The narrative-frames engaged will largely determine whether adaptation remains a low-priority, nebulous, and peripheral issue for municipal councils, to be addressed when time, budget, and inclination permit (Birchall et al., 2021, Burch, 2010), or whether it comes to be recognised as centrally relevant to good municipal governance (Alibašić, 2020).

5.2. Leveraging networks of influence for a dialogue on municipal climate risk

Council leaders interact with many public and private actors. Each actor, by design or mere presence, informs and influences municipal leaders' perceptions, deliberations, and decisions in the municipal policymaking process (Liu et al., 2010). The priority placed on climate change adaptation may be bolstered or hindered by the prevailing views and policy positions of those actors to whom municipal decision-makers are attuned and/or seek to ally (P2, Fig. 2). Our interviews with municipal leaders revealed a 'vocal minority' can disproportionately influence decision-making and hinder adaptation responses. To redress this situation, leaders' professional and peer networks of influence can be leveraged to facilitate climate risk dialogues and build agency to act (affects P1, P2, P3, and may reveal Policy Entrepreneurs, Fig. 2).

Municipal leaders told us they look to their networks for signals and guidance about the big issues on the horizon for local government. These networks include state and national governments, local government associations, professional and industry bodies, the insurance industry, and financial regulators. If municipal leaders are not hearing about climate risk from those they respect, and look to for thought-leadership, it appears far less likely to be considered a priority. Studies show that leaders' networks of influence play important roles in shifting socially-constructed perceptions of risk and responsibility (Birchall and Kehler, 2023) and mobilising a municipal climate response (Busch et al., 2018). In particular, municipal insurers, regulators, and auditors could be well placed to enact a municipal climate risk response, driven by an accountability and disclosures framework and checks for compliance (voluntary or mandated) (Amundsen and Dannevig, 2021, Keskitalo et al., 2012). Municipal leaders' networks of influence will be critical to counteracting rent-seeking pressure from special interest groups (Rydin and Pennington, 2000). They can also help normalise and legitimise adaptation as a cross-cutting policy concern for local government, contributing to the authority to adapt (Corfee-Morlot et al., 2009).

5.3. Strengthening municipal climate adaptation governance

For climate risk and adaptation to be managed as central concerns on the municipal policy agenda, some studies suggest that climate mainstreaming should be a legislated requirement of local government (see Amundsen et al., 2010, Dannevig and Hovelsrud, 2013, Sibiya et al., 2023). A legislated pathway targets critical (municipal) decision points and processes; assigns clear responsibility for managing climate risk; and creates accountability through transparent and regular reporting

requirements on the discharge of climate mainstreaming duties (Bleby and Foerster, 2023). Runhaar et al. (2018) advises that stricter guidelines for mainstreaming from higher levels of government are essential if (municipal) adaptation is to become more than a voluntary activity pursued by only the highly motivated. Similarly, Bednar et al. (2019) suggest that a more direct steering by the state is necessary to address the implementation gap. Our research has not revealed a clear preference as to whether climate adaptation mainstreaming should be a legislated responsibility for local government, however, we found municipal leaders are open to the conversation.

While potentially viewed as intrusive, legislating for municipal climate adaptation mainstreaming offers benefits. Legislation can contribute to greater awareness of, and concern about, climate risk and adaptation across (local) government (Bleby and Foerster, 2023). Legislation can require municipal leaders to widen their focus beyond the immediate-term pressures to compel adaptation where presently deferred (Homsy, 2018, Measham et al., 2011). Legislation can provide municipal leaders with the political cover they require to go further and faster in the climate response than dissenting voices may tolerate (Compston, 2009, Hamin et al., 2014). Legislation can prompt intra- and inter-organisational collaboration, and support emergence of new climate policy norms (Bailey et al., 2023). And legislation can lessen the importance of focusing events and policy entrepreneurs in driving the municipal climate adaptation agenda. However, care needs to be taken to avoid the disingenuous treatment of mainstreaming requirements as a 'tick the box' exercise, given only cursory attention by municipal leaders and staff. Legislative reform will not in itself lead to deep, systemic processual and cultural-cognitive changes in municipal governance in the absence of a genuinely committed municipal leadership. Legislation is but one pathway to accelerated climate adaptation mainstreaming that can help close the implementation gap.

6. Conclusion

An expanding global scholarship encourages the mainstreaming of climate change concerns across (municipal) policy and practice as a critical pathway to closing the implementation gap and accelerating adaptation outcomes. Some scholars contend that current approaches towards, and knowledge about what makes climate mainstreaming effective do not adequately address leaders' mindset, personal experiences, and political spheres of influence for achieving change. Responding to this knowledge gap, we examined municipal leaders' attitudes and experiences, gaining critical insights into how they understand, frame, and prioritise climate risk and adaptation among the many issues with which they must contend. Our research shows that municipal leaders recognise diverse risks will arise with a changing climate, and yet, climate adaptation is often considered a discretionary concern. Municipal leaders must be actively supported to elevate adaptation on the policy agenda, and to institutionalize new norms, goals, and accountabilities for adaptation mainstreaming. As a prerequisite to progress, mainstreaming must engage with leaders' mindsets and receptiveness to prioritising adaptation. Leadership will likely prove the keystone to accelerated municipal climate adaptation. The opportunity is before us to enliven the global research and governance agendas in this space.

CRediT authorship contribution statement

Nina J.L. Rogers: Writing – review & editing, Writing – original draft, Visualization, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Vanessa M. Adams:** Writing – review & editing, Visualization, Supervision, Formal analysis, Conceptualization. **Jason A. Byrne:** Writing – review & editing, Visualization, Supervision, Methodology, Formal analysis, Conceptualization.

Declaration of Competing Interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Nina J.L. Rogers reports financial support was provided by Natural Hazards Research Australia. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

The authors do not have permission to share data.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.envsci.2024.103869.

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