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City-to-city learning in transnational municipal climate networks: an exploratory study

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ABSTRACT

Municipalities worldwide are increasingly exposed to the impacts of climate change manifesting in a higher incidence of natural hazards. In order to respond to these challenges, local governments need to search for solutions that proved to work elsewhere. Learning exchanges with peers from other municipalities - on the national and international level – appear to be a promising approach for local policymakers. Indeed, particularly in the last two decades cities were globally joining together in transnational municipal climate networks that promote city-to-city learning and the sharing of knowledge among its members. However, our current understanding of the functioning of these network organisations and the significance of the learning processes they facilitate is still very limited. Little is known about their impacts on the ground (e.g. on policy formulation). Moreover, despite numerous attempts to theorise and define policy learning, we still do not know how policymakers actually learn.

Drawing mainly on various literature streams on governance and policy learning and policy mobilities literature this thesis explores how learning exchanges among local policymakers within transnational municipal climate networks affect local climate policymaking. The outlined question was explored through expert interviews with local policymakers and representatives of transnational municipal climate networks. The thesis is composed of three distinct research papers.

At first, the various transnational municipal climate networks needed to be better defined, systemised and distinguished from another. This was done by way of a two-step desk research methodology consisting of an extensive academic literature study and an analysis of sources provided by the examined network organisations. A key finding was that there are very exclusive elite networks only open to a limited number of municipalities on the one hand, and very inclusive mass networks open to almost all municipalities on the other. Moreover, there is a stark differentiation between traditional public governance oriented networks and new emerging non-state funded networks that call for stronger private-public partnerships.

In a further step, a global survey addressing key network and local representatives explored the learning opportunities leveraged from transnational municipal climate networks. In particular, the forms in which city-to-city learning is taking place within networks, alongside a perception of its helpfulness and significance by the policymakers involved. The findings generally confirm that through the participation in climate networks policymakers are enabled to learn from and with their peers from municipalities

facing similar challenges. Indeed, in many cases, transnational municipal climate networks act as crucial facilitators of valuable personal contacts among local policymakers. Moreover, it was shown that only some exchanges among local policymakers qualify as learning while the major parts of them were around the sharing of knowledge.

The global survey also revealed that many policymakers regard study visits an effective network tool to initiate in-depth learning exchanges. Therefore, in the final paper of the thesis, study visits in climate change adaptation organised by a consortium of European municipal climate networks were investigated. Several interviews with policymakers participating in the study visits showed that – under certain conditions – they increase the credibility of policies within a municipal administration and can initiate policy adoption. However, the research also raises critical questions about the mass suitability of one-sided learning exchanges of inexperienced municipalities from frontrunner or pioneering municipalities. Instead, a stronger emphasis should be placed on mutual learning exchanges between more equal partners that learn and improve together.



INTRODUCTORY CHAPTER

City-to-city learning in transnational municipal climate networks

INTRODUCTION

Cities are increasingly positioning themselves as climate governors on the global level. Their emerging role in leading climate action has been reinforced through transnational municipal climate networks (TMCNs henceforth). These include organisations such as Local Governments for Sustainability (ICLEI), 100 Resilient Cities (100RC), the C40 Climate Leadership Group (C40) the Asian Cities Climate Change Resilience Network (ACCCRN) or the Covenant of Mayors (CoM), just to name a few.

In the meantime, TMCNs increasingly arouse the interest of practitioners and academics. However, our current understanding is still limited wherefore many scholars called for more careful analytical work on TMCNs (see Bouteligier, 2013; Lee, 2013; Gordon, 2013; Gordon and Acuto, 2015; Gordon, 2016). Indeed, to date little is known about their impacts on the ground, for instance on the formulation of local climate policies (Bulkeley et al., 2003; Bulkeley, 2010; Fünfgeld, 2015; Busch et al., 2018).

The main focus of this thesis is on one key function and self-proclaimed asset of TMCNs: the facilitation of learning processes among its members, also referred to as city-to-city learning (C2CL henceforth). Just as for TMCNs, also C2CL and to a lesser extent policy learning represent an understudied phenomenon (Tjandradewi and Marcotullio, 2009; Gilardi and Radaelli, 2012). This applies particularly to transnational learning exchanges (Vinke-de Kruijf and Pahl Wostl, 2016).

The thesis explores how learning exchanges among local policymakers within TMCNs affect local climate policymaking. Indeed, the outcomes of those learning exchanges, e.g. the adoption of policies by a local government, allow drawing conclusions on the impact and significance of TMCNs for local climate action and urban climate governance. This overall question was addressed through expert interviews with key stakeholders active in TMCNs and local governments and the study of academic literature and documents provided by

the studied TMCN-organisations. It needs to be stressed that the presented work is based on explanatory research. The examined topic is relatively broad and widely under-studied. Consequently, there are no intentions to provide guidelines or give precise policy recommendations but rather to map the status quo and to identify key pathways for future research.

The thesis is composed of this introductory chapter, three research articles, and a final conclusion chapter. Table 1 highlights the distinct research questions of the three articles that contribute to answering the main research question.

Article 1 was co-authored with my internal supervisor Alessandro Coppola and published in the *International Journal of Urban Sustainable Development* (see Haupt and Coppola, 2019).

Article 2 was co-authored with my external supervisor Chris Zevenbergen and my two colleagues Sebastiaan Van Herk and Lorenzo Chelleri. Twelve out of the forty-eight interviews for this paper were conducted by my co-authors. The paper is currently under review for publication in the *International Journal of Urban Sustainable Development* (first round of review, major revisions).

Article 3 is currently under review for publication in the *International Journal of Urban and Regional Research*.

Moreover, extracts of the following introductory chapter were published in a chapter of the book *Resilience-Oriented Urban Planning* that is part of the series *Lecture Notes in Energy* (see Haupt, 2018).

The introductory chapter i) explores the role of local governments in global climate governance, ii) defines the key academic terms, iii) illustrates the emergence history of municipal networks and TMCNs, iv) summarises key findings and research gaps of previous studies on TMCNs v) draws the research agenda and vi) ends with outlining the methodological approach. The following first article analyses and distinguishes the examined climate TMCN-organisations, individually but also as a whole phenomenon. In the second article, it is explored globally in which forms C2CL is taking place and how it is facilitated by TMCNs. The third and final article focuses on study visits among European municipalities that were realised in the framework of the CoM Twinning Programme.

TABLE 1 – Structure of the thesis.

Main research question: <i>how do learning exchanges among local policymakers within transnational municipal climate networks affect local climate policymaking?</i>			
Article	Research-question and focus	Key debates and disciplines	Methods
Article 1	<p><i>How do TMCN-organisations function, how are they governed, and who sets the agenda?</i></p> <ul style="list-style-type: none"> • Defining, systemising and distinguishing different TMCNs. • Modifying and extending an existing TMCN-typology. • Developing a set of new dimensions and indicators to differentiate TMCNs. 	<ul style="list-style-type: none"> • Global environmental governance (Political Science). • Local climate governance (Political Science). • Network governance. (Political Science.) • Transnational governance (Political Science). 	<ul style="list-style-type: none"> • Extensive academic literature review. • Analysis of sources provided by the examined TMCNs.
Article 2	<p><i>How is C2CL happening within climate TMCNs?</i></p> <p>Investigating globally the...</p> <ul style="list-style-type: none"> • reasons for joining TMCNs and the perceived added value of a membership. • kinds of exchanged and requested knowledge. • TMCNs as facilitators of C2CL and different forms of C2C collaborations. • obstacles for C2CL in TMCNs and opportunities for improvement. 	<ul style="list-style-type: none"> • C2CL (not established yet). • Policy learning (Political Science). • Global environmental governance (Political Science). • Local climate governance (Political Science). • Network governance. (Political Science). • Transnational governance (Political Science). 	<ul style="list-style-type: none"> • Expert interviews with local policymakers and TMCN-representatives.
Article 3	<p><i>How do local policymakers learn through study visits in climate change adaptation?</i></p> <p>Examining on EU-level...</p> <ul style="list-style-type: none"> • the role of the knowledge broker. • which forms of learning took place. • the motivation of the mentor municipalities to host and organise study visits. • if and how contextual differences among the partners affect learning. • if and how the twinnings lead to policy adoption. 	<ul style="list-style-type: none"> • Local climate governance (Political Science). • Policy mobilities (Human Geography, Political Science). • Policy learning (Political Science). 	<ul style="list-style-type: none"> • Expert interviews with twinning participants.

Source: own table.

A NEW ROLE FOR LOCAL GOVERNMENTS IN A GLOBALISED WORLD

This section leaves aside TMCNs and learning for a bit. Instead, the focus is on the bigger global changes that ultimately set the ground for the emergence of TMCNs and the learning dynamics taking place within them. Indeed, TMCNs are “just” one of the many expressions that clearly represent some significant changes in the global political landscape. Their increased emergence in the last decades is inextricably linked to globalisation and its further intensification (Friedmann, 2001; Gordon, 2013). Firstly, globalisation allows and also forces local governments to become more interconnected (Toly, 2008; Andonova et al., 2009; Gordon, 2013). Secondly, in the view of some heavily cited scholars, mainly Benjamin Barber or Saskia Sassen, globalisation has led to a declined and weakened position of nation-states, which opened up new possibilities for non-state actors like towns and cities.

A GLOBAL RENAISSANCE OF CITIES?

Highlighting the attention paid - or better the attention not paid - to the local level by contemporary international analysts Michele Acuto claimed that “cities are the invisible gorillas of international studies” (Acuto, 2013: 1). He referred to the ‘invisible gorilla experiment’, a psychological experiment developed by Harvard scientists to highlight a certain form of perceptual blindness or invisibility, also known as “intentional blindness”. The key message was that while people are focussed on one thing they tend to overlook something else (important). The same happened and to a significant extent still happens today to cities. Indeed, as Acuto further elaborated...

“they are fundamental components of global governance in the twenty-first century they influence the dynamics of our (global) political scenario and, yet international analysts cannot see them because they are entrusted with looking at players the discipline has traditionally assumed crucial in order to explain some of the machinations of the game of world politics. Focussing too much on the presence of nation-states and inter-governmental relations on this scene, scholars have failed to perceive the relevance of other elements in world politics” (Acuto, 2013: 2).

In 2004 the urban theorist Brenner noted that most scholars have reacted to an evident internationalisation of national policy systems with approaches

focussing on the national and the supranational scale, mostly neglecting the major role of cities and city regions. However, the major role of cities was already recognised by some scholars in that time. The most famous among them was without doubt Jane Jacobs who took the view that cities and not nation-states are the (global) drivers of wealth (Jacobs, 1985). Focussing on urban governance in Western Europe Brenner (2004) argues that from the 1960s on globalising capitalism has led to a transformation of statehood resulting in a fundamental rescaling process towards cities and city regions. This

Building up on the work of Harvey (1989) and Leitner and Sheppard (1998) he also refers to cities and city regions as “strategic subnational spaces”. In the meantime, the debate has evolved significantly giving greater importance to the local level within the discourse about geographical scales in globalisation studies and state theory.

If Mayors Ruled the World - Dysfunctional Nations, Rising Cities: already the title of Barber’s book published in 2013 sounds provoking. Barber brings cities into play as new drivers for global leadership and as renovators of democracy. Against a background of nation-states struggling to deal with major global issues, be that the financial crisis, an immense inequality in economic and social development, global terrorism or climate change, Barber believes it is now the cities turn.

Barber’s perception is that the acceleration of globalisation has led to a situation in which cities rather unrecognised are positioning themselves as autonomous global actors to find solutions to some of the most pressuring issues of humankind. He sees his hypothesis confirmed by the constantly rising number of international, intercity and cross-border institutions and networks of cities (Barber, 2013; Barber and Means, 2016). Saskia Sassen also sees cities already today as forerunners of a complex global network, which she believes will one day bear the main burden of solving global challenges (Sassen, 2012). She is convinced that in 100 years times local representatives will be more important than national governments (ibd.)

Barber and Sassen heavily criticise that today’s global challenges, that are characterised by various interdependences and cross-border issues, are still mainly faced with institutions that were designed some four centuries ago: autonomous, sovereign nation-states with territory and jurisdictions apart from each other (Barber, 2013, Sassen, 2013). Indeed, seeing the historic context nation-states are a relatively new construct while cities or city-states have already existed since the ancient Greeks. However, no matter if democracy or dictatorship the entire world consists of nation-states today (Barlett, 2017).

“Power in the twenty-first century belongs to the problem-solvers. National governments debate and dither. Cities act, cities do”. This phrase originates from Bruce Katz, co-author of the book “The New Localism: How Cities

Can Thrive in the Age of Populism” (cited in Barlett, 2017). Why this great believes in cities? Why should local governments be doing better at solving global issues than nation-states? In order not to exceed the framework of the thesis the following three paragraphs aims to explore this question focusing on the governing of climate change.

Both Sassen and Barber are convinced that urban leaders are more likely to find solutions to environmental issues and climate change since these issues are a concrete reality in towns and cities worldwide (Barber, 2013; Sassen, 2013). In this regard Sassen explained:

“Indeed, thousands of cities worldwide have initiated their own de facto environmental policies to the point of contravening national law, not because of idealism, but because they have been compelled to, as national governments are far more removed from the immediate catastrophic potentials of poisoned air and floods and have been slow to act” (Sassen, 2013: 4).

One explanation why cities seem to be more willing to act on climate change is because they are strongly exposed to its consequences. About ninety per cent of cities are located near rivers or the seaside, places more exposed to the impacts of climate change (Barber, 2014). Indeed, also most of the world’s megacities are particularly affected by the impacts of climate change (Hunt et al., 2017).

It is not without reason that nation-states were criticised for having repeatedly failed in agreeing on sufficient and convincing goals on how to act against climate change. Indeed, looking at their role during the various annual world climate conferences the impression was that it was mostly the small island developing states that were pressing for solutions. The reason why they were far more active is quite simple: just like many worlds megacities, island states are, mainly due to their location at sea level, among the most vulnerable to the impacts of climate change (UNFCCC, 2005).

THE NATION-STATE: NOT QUITE OUT-DATED YET?

Barber’s hypothesis of a world that would be better off with cities as governors did not remain unquestioned. De Graaf (2014), among others, is very sceptical about the (alleged) benefits of a world being governed by mayors:

“I would argue that the current generation of mayors, described in the book, is successful precisely because they do not rule the world. They are successful because they are allowed to focus on smaller, more immediate, more local responsibilities, which means that their efforts by definition generate quicker and more visible results.”

Another scholar who believes nation-states definitely belong in the twenty-first century is Dani Rodrik. As economist he focuses stronger on economic effects of globalisation and the role nation-states play in it. Rodrik advocates for a “sane globalisation” with sovereign nation-states as individual key players that have the right “to safeguard their domestic institutional choices” (Rodrik, 2011: 240). Even scholars that generally support global urban governance are fully aware of the paramount importance of nation-states. Indeed, Sassen (2012) admits that nation-states are still very important. Particularly since they hold a broad range of duties, their political assertiveness is still enormous.

It also needs to be stressed that on some occasions nation-states delegated more power to the local level. This clarification seems particularly necessary since the almost messianic messages of Sassen, Barber and Katz might leave the impression that the improved standing of local governments was an exclusive result of their struggle with their own nation-states. Based on examples from Europe this point is further elaborated in the following paragraph.

In recent decades, several European countries made efforts to take account of the growing importance of the urban scale. Le Galès (2002) and Bäck et al. (2006) highlighted that major institutional changes in many countries of the European Union (EU) lead to an increased importance of the urban in Europe. For instance, in some countries (e.g. United Kingdom, Germany, Italy) the election system was reformed in order to establish a direct election of the mayor by universal suffrage. Moreover, in other countries, where the mayor’s role was already rather important (Scandinavia, France), their political influence on the national system was further strengthened (Le Galès, 2002). Mainly because of these institutional reforms Le Galès observed a general revaluation of European mayors and municipal councils and emphasised that many mayors and municipal councils are “keen to see their cities becoming political actors in Europe” (p. 236).

THE EUROPEAN UNION AS AN ADVOCATE FOR URBAN GOVERNANCE

Several TMCNs focus on Europe and moreover the EU has identified networking among local governments as a strategy to implement policies. Moreover, with regards to non-state driven climate-action, of which TMCNs are a vivid example, European initiatives are considered global leaders (Chan and Bencini, 2018). This is why there is a certain focus on Europe in this thesis, particular in article three, that examines study visits organised by a consortium of European TMCNs. Therefore, this sub-section briefly introduces the current role and evolution of the urban scale within the spatial architecture of the EU.

Alongside the described national efforts also the EU has made significant attempts to identify and valorise local governments as relevant policy actors on the European scale. Being one of the most urbanised world regions, the EU has always recognised the importance of its urban structure (Cremaschi, 2002). Indeed, as areas with the largest share of growth and innovation urban areas were regarded as the places being mainly responsible for the well being in the EU (Cremaschi, 2004).

A look at European spatial policies of the past two decades shows that the EU, mainly in the shape of the European Commission (EC), has made significant attempts to position towns and cities as relevant policy actors on the European scale. The start was made with programmes such as the Urban Pilot Projects (1989) and the Urban Programme (1994) that were focusing on urban anti-poverty policies (ibid.). In the meantime, the urban dimension of the European spatial policy has significantly grown further. For the 2014-2020 funding period of the European Regional Development Fund, at least half of the subsidies placed at disposal are dedicated to urban areas. The EC plans to distribute around ten billion Euros to around 750 local entities in order to support their efforts of implementing integrated strategies for sustainable urban development (EC, 2016). So from the rather modest beginnings as a receiver of some poverty mitigation funds, now the urban level finds itself in the heart of the EU cohesion policy.

To support the dissemination of climate policies among European local governments the EC established several TMCNs, such as the CoM, Energy Cities or Mayors Adapt¹(CoM, n.d.; Energy Cities, n.d.), or collaborates closely and supports existing European TMCNs, such as EUROCITIES or the Climate Alliance (Climate Alliance, n.d.; EUROCITIES, 2017). Setting up these initiatives, that support local decision making in urban climate change mitigation and adaptation and help connecting European (small) towns, cities, and urban areas to share knowledge and experiences, are another example for the EC' s concrete efforts to strengthen the role of the local level within the European spatial architecture.

KEY MESSAGES

The following paragraphs briefly highlight the three key messages of this sub-chapter entitled *a new role for local governments in a globalised world*. First, cities are becoming an increasingly important actor in global climate governance, especially because many of them are very directly affected by the impacts of climate change (see Barber, 2013; Sassen, 2013). Second, this is

¹ In 2015 Mayors Adapt merged with the European mitigation initiative CoM that had existed since 2008 (CoM, n.d.; EUROCITIES, 2016).

possible because there is an evolution of urban governance and a rescaling of the spatial architectures in favour of the local level (see Brenner, 2004). This is particularly evident in some European countries (Le Galès, 2002; Bäck et al.; 2006) and within the EU in general (Cremaschi; 2002 and 2004). And finally, many local governments have become more strategic and connected to each other with regards to urban governance, which also includes urban climate governance. The increasing participation in TMCNs in order to share knowledge about policies and solutions that have worked elsewhere are one of the key indicators for this evolution.

In conclusion, it should be noted that some of the presented opinions, advocating for or against the future role of nation-states and local governments, are rather abstract and cardinal. This is also due to the often normative and all-embracing character of the ideas of thinkers like Sassen or Barber. For some observers or practitioners, the strong visionary component in their ideas and convictions and the conclusions drawn by them might appear to be (still) quite distant from the contemporary reality. Nevertheless, they point to concrete and observable changes in global and urban governance.

DEFINING THE MAIN TERMS

This section introduces and defines the most relevant academic terms used in the thesis and identifies the main literature streams this work contributes to. At first, the use of academic terms in the thesis is presented and explained. Then, a few lines are dedicated to defining and describing the main object of research in this thesis: TMCNs. Thereafter, several relevant forms of governance are briefly introduced. The final sub-section defines policy learning and C2CL and outlines how learning is perceived in this thesis.

THE USE OF ACADEMIC TERMS IN THE THESIS

The reader of the thesis might wonder why some key terms are used interchangeably or even somewhat imprecisely. The reason for this is that the thesis orients on the most commonly used terms in the academic literature, which not always represent the most precise ones. This applies to the terms C2CL, TMCNs, municipalities or cities. For instance, some of the cited scholars generally use the term cities when often referring to the local level or local

governments (e.g. Benjamin Barber, Saskia Sassen, Neil Brenner). Also, many of the examined TMCNs use the term city in their name even though they do not exclusively consist of cities (e.g. 100 Resilient Cities, Citynet, Energy Cities). Moreover, in article three the “City Twinning Programme” organised by EUROCITIES and the Covenant of Mayors (CoM) was investigated. Also, in this case, a terminological inaccuracy could be detected since the programme also included smaller towns.

Technically, for the presented research the term local level or local governments is the most suitable one since it encompasses municipalities (small towns as well as big cities), city regions, urban agglomerations and city regions. Therefore, when referring to policymakers active in towns, cities, city regions or the like the term local policymaker is consistently used. However, for other terms, the same logic could not be applied since these terms are used differently in the literature. For instance, C2CL refers to all kinds of learning exchanges among local policymakers of different local entities. Indeed, C2CL is not restricted to city practitioners but refers to all representatives of the local level. The same applies to TMCNs that are not only network organisations for municipalities or cities but also likewise encompass the entire local level. In this context, the term municipality is more precise than the term city though. However, despite these technical inaccuracies the presented terms are the most commonly used ones in the academic literature and are consequently also used in the thesis.

WHAT IS A TRANSNATIONAL MUNICIPAL CLIMATE NETWORK?

In a nutshell, TMCNs are “non-hierarchical, horizontal and polycentric” formal organisations (Kern and Bulkeley, 2009: 309 -310) with own staff offices and headquarters (Busch, 2015). TMCNs are autonomously joined by local governments and “decisions taken within the network are directly implemented by its members” (Kern and Bulkeley, 2009: 309 -310). The various criteria that determine if an organisation qualifies as TMCN are presented and explained in more detail in Article 1.

Focussing on learning exchanges among local governments, also the terms knowledge networks (Feldman, 2012; Pietri et al., 2015; Goldstein et al., 2016) or learning networks (Feldman, 2012) are used. As explained, TMCNs are formal organisations with a formal structure and are understood as those in this thesis. Consequently, they are not to be confused or equated with informal (social or policy) networks existing within or outside TMCNs.

Looking at the involved actors in TMCN-activities these can range from local, regional and national policymakers to government agencies and NGOs

(Feldman, 2012). Increasingly, also the private sector is getting involved in TMCNs (Lidskog and Elander, 2010; Granberg et al., 2015; Mejía-Dugand et al., 2016).

It needs to be stressed that the presented definitions represent the current academic state of the art. Consequently, in the thesis, they are used as a starting point. However, there are clear signs that these definitions are not entirely up-to-date anymore. Indeed, one aim of the thesis is to critically reconsider and if necessary update and extend these definitions as well as our overall understanding of these organisations.

WHAT ARE THE MAIN LITERATURE STREAMS DEALING WITH TRANSNATIONAL MUNICIPAL CLIMATE NETWORKS?

Locating TMCNs within the existing body of academic literature the main fields of reference are global urban governance, transnational and network governance and local climate governance. In the following the aforementioned terms are briefly explained.

The term of global governance was substantially coined by Rosenau (1995: 13) who understands it as “systems of rule at all levels of human activity—from the family to the international organisation—in which the pursuit of goals has transnational repercussion”. In a nutshell, global urban governance refers to a steadily increasing importance of local policymakers on the global level (Acuto, 2018). It is around “the intersection of global governance with environmental affairs” (The Commission Our Global Neighborhood, 1995: 2-3).

In the context of global governance, an increasingly used term is transnational or transnationality. Starting with the shortest definition transnationality is “about the here and the there and the in-between” (Parnreiter, 2011: 417). Transnational governance can be characterised as a form of governance with “regular interactions across national boundaries when at least one actor is a non-state agent or does not operate on behalf of a national government or an international organisation” or “when at least one actor pursues her own agenda independent of national decisions” (Risse-Kappen, 1995: 3). At times, the term transnational is used in an imprecise and vague manner. For instance, some authors label all kinds of cross-border interactions as transnational or equate transnational with international. Nevertheless, as shown the term is defined quite precisely. Indeed, “the strength of the transnationalism paradigm is its conceptual sharpness in grasping the relationships between multiple cross-border interactions and the “national””(Parnreiter, 2011: 417).

Similar to transnational governance, network governance challenges the traditional understanding of governance with the state as the (only) regulator. By contrast, in network governance greater attention is paid to new forms of looser governance with a more diverse set of actors engaged, such as NGOs or the private sector (Pierre and Peters, 2000; Bogason and Musso, 2006; Sørensen, 2014). In this context, Khan (2013: 137-138) pointed out that “network governance is based on mutual interactions between a variety of interdependent actors, each with their own motives, who come together to solve a common problem”.

The academic debate around local climate governance adds a meaningful perspective to the study of local governments engagement in TMCNs and global climate policymaking since it acknowledges the significance of local governments as independent actors. Anguelovski and Carmin (2011: 169) summarised that “the traditional view of climate governance is that local action is shaped by international agreements and national policies, the priorities of funders, and ideas advanced by nongovernmental organisations and transnational networks” and that “some cities take action in response to these actors and the pressures they exert”. However, this understanding of the role of the local level’s role within climate governance is very one-sided and fully ignores that most local governments are actually “motivated by internal goals and are taking independent action to advance their climate agendas” (Anguelovski and Carmin, 2011: 169).

HOW IS LEARNING UNDERSTOOD IN THIS THESIS AND WHAT IS CITY-TO-CITY LEARNING?

It cannot be said that there is a lack of definitions or theorisations of learning. Indeed, Bennett and Howlett (1992) noted that there is a “definitional ambiguity” manifesting in different authors using the same terms for learning. This section aims at clarifying how learning, more precisely C2CL, is understood in this thesis. In general terms, this mainly concerns policy learning and peer learning. Both terms are briefly introduced in the following paragraphs. Thereafter, C2CL is illustrated and distinguished from the more widespread concepts of policy and peer learning.

Starting on the most generic level, a review of policy learning in social sciences defined learning as “the updating of beliefs based on lived or witnessed experiences” (Dunlop and Radaelli, 2013: 599). Technically speaking policy learning takes place “when policymakers adjust their cognitive understanding of policy development and modify policy in the light of knowledge gained from past policy experience” (Stone, 2004: 551). A subcategory of policy learning is government learning, which describes “the process by which governments

increase their intelligence and sophistication and in this manner enhance the effectiveness of their actions (Etheredge, 1981, cited in Bennett and Howlett, 1992: 277).

Andrews and Manning (2016: 4) understand peer learning as “a potentially powerful way of sharing knowledge about doing public sector reform”. In more detail, it is defined as follows:

“this learning involves individuals exchanging knowledge and experience with each other, and diffusing this learning back to their organisations to ensure an impact—at scale—on reform initiatives. While peer learning entails complex organisational logistics, it avoids the risk of focusing on process rather than product. It recognises that ultimately learning takes place between individuals and it facilitates interpersonal interchanges that are well- matched and that are based on trust and commitment.”

Andrews and Manning (2016: 7) also highlighted the importance of the “political” in peer learning since public sector management cannot be seen isolated from political influences. Furthermore, “peer learning replaces abstract notions of “vision” and “political will” with an emphasis on practical problem-solving” (ibd.).

Generally speaking, learning focuses on acquiring knowledge and knowledge should be understood as information “that is meaningful to knowledgeable agents” (Fleck, 1997: 384). By implication, this also defines what does not qualify as learning and what is consequently not considered learning in this thesis. To put it concisely, the mere sharing of information among stakeholders does not automatically qualify as learning. Indeed, information only becomes knowledge when it is understood and when it can be used or applied by its recipient.

Other than the forms of learning described beforehand, C2CL offers a quite precise explanation of the learning exchanges studied in this thesis. The term is relatively new. The first to use it were Seymoar et al. (2009). All existing definitions are around mutual sharing of knowledge and mutual learning among peers (see Lundby and Sjöberg, 2013; Koop and van Leeuwen, 2015; Van Herk et al. 2016a). In this context, Van Herk et al. understand mutual learning as the vision of local governments learning and improving together as opposed to only one partner learning from another (supposedly more advanced and experienced) partner.

While most definitions are relatively short and rather have the character of catchwords or short bullet points Van Herk et al. (2016a) have elaborated on the idea behind C2CL in greater detail:

“cities around the world are facing unprecedented challenges as they deal with climate change, rapid urbanization, increasing disaster risks,

volatile economies and environmental pressures. City-to-city learning aims to build greater institutional and human capacity to accelerate progress towards disaster resilience. The main difference and advantage of this initiative over other capacity development services, such as technical training, is that cities learn together and from each other's knowledge and experience."

Generally speaking, C2CL can be described as a specific form of policy learning and peer learning. Policy learning because the learning objects are policies, plain and simple. Peer learning since it describes learning from a person that is doing the same job (elsewhere). In the case of C2CL local policymakers. Other than peer learning, policy learning could for instance also mean learning from a non-municipal external expert.

Looking for reasons why local governments should engage in C2CL Van Herk et al. (2016a) outlined for the United Nations Office for Disaster Risk Reduction (UNISDR) why it should be a key component of a local government's response to the opportunities and challenges caused by a rapidly changing urban environment. Moreover, Van Herk et al. (2016a) listed a number of reasons why cities should engage in C2CL processes, namely that it: i) "accelerates the transfer of knowledge and experience from one or more cities, to one or numerous others", ii) "fosters the joint creation of new knowledge in cities, in turn empowering local governments: creating a collective voice", iii) "reinforces local networks by stimulating active participation of policymakers, practitioners, the private sector, NGOs and citizens, paving a way for development of beneficial approaches and multi-stakeholder partnerships", iv) "enhances the collective memory of participating cities", v) "provides opportunities to leverage and aggregate resources for joint activities (e.g. research programmes)" and vi) "increases the capacity of cities to learn overall."

As mentioned beforehand C2CL represents a relatively new concept encompassing a quite limited body of literature. It was included to this thesis as concept because it precisely fits the focus of this thesis: studying learning exchanges among local policymakers and peers representing towns and cities that face similar adaptation challenges. In turn, as a concept C2CL does not (yet) provide researchers with a solid body of research evidence or analytical guidance to study learning exchanges. Therefore, the main learning related research insights and gaps were derived from related and more established literature streams such as policy learning and policy mobilities. This literature is introduced and discussed in Article 2 and 3.

FROM MUNICIPAL NETWORKS TO TRANSNATIONAL MUNICIPAL CLIMATE NETWORKS

The following section provides an overview of the history and development of municipal networks in general. Thereafter, a closer look is taken on the emergence of TMCNs. The final sub-section covers the focus of previous research on transnational municipal climate networks and outlines the main research and knowledge gaps.

THE EMERGENCE OF MUNICIPAL NETWORKS

The historical ties of municipal networks or related phenomena go back much further than the two or three decades that TMCNs exist and are explored in the following paragraphs.

As described in the previous section, globalisation played a major role for the risen importance of the local level and for the increasing emergence of municipal networks. Besides globalisation, further reasons for their emergence could be found in the academic literature. One was “to find solutions to policy problems that are commonly felt by policymakers and other involved actors” (Khan, 2013: 134). Climate change-related reasons are to be found in the “uniquely complex and multifaceted nature of the mitigation–adaptation challenge” (Andonova et al., 2009) and the circumstance that “individual local governments lack the capacity or resources to address some issues without the cooperation of neighbouring municipalities” (Giest and Howlett, 2013: 12).

Already before the era of globalisation, there were some remote preforms of municipal networks such as the Hanseatic League, a confederation of Northern European merchant towns that emerged in the thirteenth century (Ewen and Hebbert, 2007). A few centuries later, in 1913, the International Union of Local Authorities, the first internationally representative organ for municipalities, was founded (UN-HABITAT and WACLAC, 2003). Its main function was “general information exchange and mutual support” which lead to the establishment of “a small but important number of city-to-city links” (Tjandradewi and Marcotullio, 2009: 165).

Increased emergence of TMCN-precursors could be observed from the 1950s onwards. Examples include the Town-twinning organisation (1946), the Council of European Municipalities and Regions (1951), the Sister Cities

International Organisation (1956) or the United Town Organisation (1957) (Tjandradewi and Marcotullio, 2009). Since the 1990s transnational municipal networks as defined in the previous sub-chapter emerged in growing numbers (Ward and Williams, 1997; Kern and Bulkeley, 2009).

Further organisation sharing similarities with TMCNs are national umbrella organisations representing municipalities on the national level. Those associations have emerged in several countries from the early twentieth century on. One of the first ones was ANCI, the National Association of Italian Municipalities, founded in 1901 (ANCI, n.d.). In 1905, the local level in Germany followed with the establishment of the Association of German Cities (Deutscher Städtetag 2018). In light of the Great Depression the United States Conference of Mayors was formed in 1932 (US Conference of Mayors, n.d.). The main goal of those associations was, and still is until this day, to represent and give the local level a voice on the national level.

The presented organisations are also active in similar domains as the TMCNs examined in this thesis. For instance, the US Conference of Mayors has identified the combat against climate change and local resilience planning as one of their key duties (Anderson, 2018). This role as an audible advocate for action on climate change has been reinforced in the course of US-President Trump's announcement to withdraw from the Paris Climate Agreement in 2017. As a reaction to Trump's decision during a US-Conference of Mayors meeting in Miami Beach, a coalition of more than 250 city mayors set very ambitious clean energy goals (Durr, 2017). However, a key difference of those national associations of municipalities compared to a TMCN as understood in this work is the embeddedness in the respective national framework. In the first place those organisations represent and support the municipalities of their countries and are not transnational organisations. Despite all similarities, by definition they cannot be regarded as TMCNs.

THE EMERGENCE OF TRANSNATIONAL CLIMATE NETWORKS

Since the early 1990s local governments around the globe started to become active in local climate change action, mostly focusing on climate change mitigation (Khan, 2013; Zeppel, 2013). An important milestone that triggered these activities was the United Nations (UN) action programme Agenda 21 adopted at the 1992 climate summit in Rio (UN, 1992). It was about the same time that the first TMCNs started to emerge (Bulkeley and Schroeder, 2012). These newly formed TMCNs increasingly focused “on promoting climate change action in cities and by local governments” (Hakelberg, 2014: 109). ICLEI was one of the first globally acting TMCNs tackling climate change. At the same time also in Europe (Climate Alliance, Energy Cities) and in Asia (Citynet) TMCNs

started to emerge (see Table 2). In the meantime, many local governments worldwide started to take “a pioneering role in tackling climate change” and were increasingly regarded as “key players in a possible transition to a future low carbon society” (Khan, 2013: 133).

TABLE 2 – Transnational municipal climate networks examined in the thesis.²

Transnational municipal network	Founded	Spatial reach	Thematic main focus
<i>EUROCITIES</i>	1986	Europe	Local government affairs
<i>Citynet</i>	1987	Asia	Sustainable development
<i>Climate Alliance</i>	1990	Europe	Climate change mitigation
<i>Energy Cities</i>	1990	Europe	Climate change mitigation
<i>Local Governments for Sustainability (ICLEI)</i>	1990	Global	Sustainable development
<i>United Nations International Strategy for Disaster Reduction (UNISDR)</i>	1999	Global	Disaster resilience
<i>URBACT</i>	2003	Europe	Sustainable development
<i>C40 Leadership Group (C40)</i>	2005	Global	Climate change mitigation
<i>Asian Cities Climate Change Resilience Network (ACCCRN)</i>	2008	Asia	Climate resilience
<i>Covenant of Mayors (CoM)</i>	2008	Europe	Climate change mitigation and adaptation
<i>Cities Development Initiative For Asia (CDIA)</i>	2007	Asia	Sustainable development
<i>100 Resilient Cities (100RC)</i>	2013	Global	Resilience
<i>Compact of Mayors</i>	2014	Global	Climate change mitigation and adaptation

Source: Citynet, n.d.; Climate Alliance, n.d.; Compact, n.d.; CoM, n.d.; Energy Cities, n.d.; ICLEI, n.d.; URBACT, n.d.; CDIA, 2014; UNISDR, 2015; EUROCITIES, 2017; 100RC, 2018; ACCCRN, 2018; C40, 2018.

For a long time, urban climate change governance within TMCNs and in general mainly focused on climate change mitigation. On the contrary, for most of the time climate change adaptation or climate resilience were ignored (Fünfgeld, 2015). Mainly starting from the Paris climate summit in 2015 this one-sided approach was substantially challenged and steadily replaced by an understanding that considered mitigation and adaptation as equally necessary pillars of climate action (see UNFCCC, 2015). This shift was also reflected in the future orientation of many TMCNs that extended their thematic focus to adaptation.

The Paris climate summit brought more than just a readjustment of climate responses. In addition, local governments found themselves in the middle of the debate. Indeed, the summit negotiations were attended by a noteworthy number of mayors from big cities all around the world (Bailey, 2015). With ICLEI, C40 and UCLG also TMCNs were getting involved in the Paris summit to ensure “that the voice of local and regional governments was heard in all the

² The selection criteria for the listed TMCNs are explained in Article 1.

negotiations” (UCLG, 2015). A further step was made in 2018 with the Intergovernmental Panel on Climate Change (IPCC) Cities and Climate Change Science Conference in Edmonton. It was the first world climate conference exclusively focussing on towns, cities and urban areas, with several prominent mayors, TMCNs and the science community attending and formulating the Edmonton Declaration, a global call for local, science-driven climate action (see City of Edmonton, 2018).

The local government’s increased influence that became perceptible in Paris did not occur overnight. In fact, it is the result of continuous, on-going development. There was the already mentioned climate summit of Rio in 1992 and there was the Copenhagen summit in 2009 where the assembled nation-states spectacularly failed to agree on a follow-up document for the expiring Kyoto Protocol (Fuhr and Hickmann, 2016). Therefore, the trust in national governments to find meaningful responses to climate change further decreased, macro-socially and in particular in the view of many local actors. As a consequence, non-state initiatives such as TMCNs started to receive much more attention from politics and academia and were increasingly considered as suitable alternatives to international climate negotiations (ibid). Nowadays, local governments can be considered “key actors in multi-level global climate governance” (Zeppel, 2013: 227).

FOCUS OF PREVIOUS RESEARCH AND MOST COMMON RESEARCH GAPS

The role of TMCNs in climate governance was examined in a steadily increasing body of literature (Fenton and Busch, 2016). This section gives an overview of the focus of previous research and highlights the main questions scholars examining TMCNs were and are still grappling with.

A: Impacts and efficiency of TMCNs

The most commonly stated research gap on TMCNs deals with the lack of knowledge about their impacts on the ground (Bulkeley et al., 2003; Bulkeley, 2010; Giest and Howlett, 2013; Fünfgeld, 2015; Bernstein and Hoffmann, 2018; Busch et al., 2018). In this context, Bulkeley (2010) pointed out that “we simply do not know what the impact of many of the initiatives that have been undertaken over the past two decades has been or what these achievements might amount to collectively” (Bulkeley, 2010: 20). Even though TMCNs were never formally and comprehensively evaluated with regards to their impacts it is suggested that they were able to influence the “nature of the debate concerning climate protection and actions” (Kern and Bulkeley, 2009: 319) and that they “can have considerable impact on policy formulation and implementation” (Bulkeley et al., 2003: 248). An example of that is the earlier mentioned Local Agenda 21 that was largely driven by TMCNs, namely by

ICLEI, and that played a key role in the 1992 summit in Rio (ibd.).

Closely linked to the question of the TMCN's impact is the difficulty to measure their efficiency (Bäckstrand, 2008; Hakelberg, 2011; Giest and Howlett, 2013). Here, special attention needs to be paid to the question if a TMCN-participation actually results "in more effective, additional, and "better" climate change responses and outcomes on the ground" (Fünfgeld, 2015: 71). The difficulty is how to measure "direct benefits from network membership" (Mejía-Dugand et al., 2016: 61) and "net effects of cities" participation in national or transnational networks" (Fünfgeld, 2015: 70). Besides, it is still not clear "to what extent networked relations provide direct guidance for governance" (James and Verrest, 2015: 65). Moreover, for the quantitative measurement of the impacts and effectiveness of non-state climate initiatives such as TMCNs the lack of comparable and comprehensive data currently represents the most critical obstacle (Hsu et al., 2018).

While the environmental and decarbonisation performance of nation-states has been a subject of research for some time past, for instance by using quantitative indicators and indices (see Hsu et al., 2013), the assessment of the impacts of non-state climate action is still rather in its early stages (see Bernstein and Hoffmann, 2018; Chan and Bencini, 2018; Chan et al., 2018; Hsu et al., 2018).

A mapping of the implementation of non-state climate change mitigation action in Europe revealed that there is fewer action in Central and Eastern Europe compared to the rest of the continent (Chan and Bencini, 2018). Moreover, the analysis of official material (reports, website and online information) of more than 100 cooperative initiatives tackling mitigation, including the TMCNs C40, CoM and Compact, showed that most of the outputs produced were in compliance with their initial commitments or pledges (Hsu et al., 2018). Recently, Bernstein and Hoffmann (2018) have developed a yet-to-be tested framework aiming at the political analysis of subnational climate mitigation experiments and how they correlate with formal global response.

Moreover, some TMCNs have undertaken a form of self-assessment or self-monitoring. For instance, ICLEI developed standardised greenhouse gas emission protocols (Bulkeley and Jordan, 2012: 562). Also, the CoM monitors the greenhouse gas reduction of its members and has made it an obligation to at least achieve a twenty per cent reduction (CoM n.d.). However, how to measure efficiency in adaptation and resilience remains widely unclear.

B: Global research on TMCNs

Overall, the previous knowledge generated on non-state climate initiatives in general and on TMCNs in particular was too strongly based on research conducted in Europe and North America (Bulkeley, 2010). Indeed, these are also the world regions where most TMCN-members and non-state climate initiatives are active, while other world regions are still underrepresented

(Bansard et al., 2017; Hsu et al., 2018). This is particularly problematic since Europe and North America only constitute a small fraction of the world's population. Also, it needs to be taken into account that more and more local governments outside these world regions are gradually joining TMCNs. For comparison, Europe and North America only account for roughly 1.3 billion of the 7.5 current world population. Looking further ahead, if the climate policies promoted by TMCNs should have any meaningful global significance much more attention needs to be paid to those roughly 6.2 billion people often living in countries with steadily rising urbanisation levels. If solutions that work in Europe or North America are of help there and if they can be transferred to other contexts urgently needs further exploration (Van Herk et al., 2016b). However, things are changing slowly: for instance, in recent years the Asian TMCN ACCCRN has been an increasingly studied case (see Divya et al., 2013; Orleans Reed et al., 2013; Kernaghana and da Silva, 2014; Archer et al., 2017). However, then again the other transnational Asian TMCN Citynet was widely neglected.

C: Learning and knowledge sharing within TMCNs

In 2005 Selin and Vandever predicted that “information about regional climate change and policy experiences will move beyond the region via the many (often overlapping) networks of activists environmental and public health NGOs, professional organisations, and networks of state and local officials and administrators” (Selin and Vandever, 2005, 373). The large number of best practice examples circulated by different TMCNs (e.g. the “Benchmark of Excellence” for CoM signatories) suggests that this has become reality (CoM, n.d.).

Looking at the academic literature a very often identified function of TMCNs was to provide a platform for the dissemination and sharing of knowledge (see Baycan et al., 2006; Andonova et al., 2009; Gustavsson et al., 2009; Kern and Bulkeley, 2009; Leutelt, 2010; Feldman, 2012; Bouteligier, 2013; Zeppel, 2013; James and Verrest, 2015; Fenton and Bush, 2016; Fuhr and Hickmann, 2016; Mejía-Dugand et al., 2016; Nagorny-Koring, 2018). However, as highlighted before the sharing of information or knowledge does not automatically qualify as learning. Indeed, to date, a comprehensive understanding of the effects of transnational learning on the formulation of climate change policies is lacking (Lee and van de Meene, 2012). Moreover, the factors that drive learning relations are mainly unknown (ibid).

Nevertheless, many TMCNs promote their organisations as platforms for learning exchanges. For instance, 100RC advertises with the “inclusion in a 100RC peer-to-peer and learning network among member cities” (100RC, 2016) United Cities and Local Governments (UCLG) states that “one of UCLG’s main reasons for being is its coordination of international C2CL exchanges between local and regional governments (UCLG, 2015). The CoM claims to offer to its members “networking and peer-to-peer-learning opportunities

through dedicated events, city twinning activities, a practitioners group etc. to support the growing community of practice” (Climate-ADAPT, n.d.). Furthermore, the goal of Citynet is to enable local governments “to learn and share various successful examples throughout Asia” and ACCRN describes its organisation as “a platform for generating and sharing knowledge about building urban climate change resilience (ACCRN, 2018).

DRAWING THE RESEARCH AGENDA

This section outlines the research agenda of the thesis. More precisely, by drawing on previous research and key research gaps the main research question and the rationale behind it are described and explained. Moreover, key ideas and the logic order of the three distinctive articles that collectively form this research project are briefly illustrated.

As highlighted in the previous section, the most commonly stated, and probably also the most fundamental, research gap on TMCNs is around the lack of knowledge about their impacts on the ground such as the formulation of climate policies. Also, to date there exist no successful attempts to measure their overall efficiency or impact. Additionally, previous research on TMCNs has pointed to the dynamics of knowledge sharing through TMCNs. Moreover, most TMCNs claim that learning exchanges among local governments are a key benefit their organisations offer to its members.

Linking those two key points, the lack of knowledge on the TMCN’s impact and the identification of learning as a key activity of TMCN-member municipalities, guided the formulation of the main research question of the thesis. Indeed, a general measurement or assessment of the overall impact of the manifold TMCNs is difficult, if not impossible. However, what can be done is regarding a concrete network feature and examine if and how it affects local climate policymaking and if it leads to successful results. In this case, this feature is around the learning exchanges among municipalities, more precisely among local policymakers, also known as C2CL.

Summing up the previous core ideas, what is still missing is a notion of what can determine a successful C2CL exchange. A convincing impact of learning could be policy adoption or policy change happening as a result of a learning exchange with another municipality. Indeed, policy change or policy adoption was repeatedly identified as key examination criteria for policy learning (see

Prater and Lindell, 2000; Jaffe et al., 2005; Kemp and Weehuizen, 2005; Kulsum and Sánchez-Triana, 2008).

Taken together, the outlined core ideas lead to the formulation of the following main research question this thesis aims to answer: *how do learning exchanges among local policymakers within transnational municipal climate networks affect local climate policymaking?*

The main research question is explored within three research articles.

The first article focuses on the different TMCN-organisations, the key research objects of the thesis. The aim of this article is to differentiate the existing TMCNs based on several key distinguishing criteria such as their organisational structure, rules of engagement or governance.

In the second article, it is explored in which forms C2CL is taking place and how it is facilitated by TMCNs. The main aim of this article is to map the perceptions of key municipal and TMCN-stakeholders providing a global picture.

The results of the global survey conducted in the second article determined the research agenda for the final article. One key result of the global survey was that in-depth C2CL takes place through TMCN-managed study visits. Therefore, Article 3 examines the learning exchanges in the framework of the CoM Twinning Programme. Through the programme, a consortium of European TMCNs organises multi-day learning exchanges among European municipalities with the final aim of triggering policy adoption.

EXPLAINING THE METHODOLOGICAL APPROACH

This section presents the methodological approach of the thesis. In each of the three articles, the respective methodological approach and the methods applied are outlined and explained in more detail (e.g. selection of material to examine, details on interviewees, selection of interviewees, limitations).

The insights gained and findings made in this thesis mostly derive from expert interviews and secondary data analysis. Especially, but not exclusively for Article 1, the analysis of documents provided by the examined TMCNs was of key importance. The empirical work for Article 2 and 3 mostly consisted of expert interviews with key stakeholders (local and TMCN-representatives).

The analysis of secondary data - I refer to it as "desk research methodology" in Article 1 - does not require an in-depth explanation (additional to the one provided in the article). In a nutshell, it mainly included a critical and extensive study of the academic literature addressing TMCNs and the analysis of sources provided by the studied TMCN-organisations, mostly website information, promotional materials, and reports. In contrast, the method of expert interviews as used in Article 2 and 3 and how I applied it needs to be explained and discussed requires a detailed explanation and reflection as provided in the following six sub-sections.

i) Interviewing experts

Semi-structured expert interviews were carried out between April 2016 and July 2018. The interviews were conducted on-site, via phone, Skype or email. In total, sixty-two expert interviews were realised, forty-eight for Article 2 and fourteen for Article 3. The average interview duration was about twenty-six minutes, circa twenty-one minutes for Article 2 and circa thirty-three minutes for Article 3. The longest interview took about one hour and four minutes while the shortest interview was around ten minutes.

Interviewing is one of the most commonly used methods in empirical social research and interviewing experts is applied as an independent method in research fields such as organisational research or policy research (Meuser and Nagel, 2009). As an instrument of data collection, expert interviews aim at a specific form of knowledge: expert knowledge (ibd.). Littig (2009) specified the general significance of expert knowledge for researchers:

“social scientific interest in experts is targeted at their specific contextual knowledge of a given research field or their internal knowledge of the structures, procedures and events in a given organisation. In other words, experts serve as informants and possess knowledge otherwise not accessible to researchers” (Littig, 2009: 100).

According to Meuser and Nagel (2009), an expert is a person who is responsible for the development, implementation or control of solutions, strategies or policies and who has privileged access to information about groups of persons or decision processes. Moreover, an expert can also be a person “in positions of power” and “with greater decision-making responsibility”, which does not necessarily mean, experts “have to be the people who make the high-level decisions at the top of an organisation” (Littig, 2009: 100). The presented expert definitions correspond well with the profile of the stakeholders interviewed in the framework of this thesis. These were mainly local policymakers (e.g. resilience officers, environmental coordinators, climate managers) and employees of TMCNs (e.g. programme managers or network directors).

Additionally to their expert status, some of the interviewees could also be defined as elites. Elites represent “a group of individuals, who hold, or have

held, a privileged position in society and, as such, as far as a political scientist is concerned, are likely to have had more influence on political outcomes than general members of the public” (Richards, 1996: 199 as cited in Littig, 2009: 99). Or in a nutshell, “group’s members are “the influential, the prominent, and the well informed” (Dexter, 1969/2006: 19 as cited in Littig, 2009: 99). This would for instance also apply to the Chief Resilience Officers (CROs) representing cities that are part of the 100RC network. Overall, eleven CROs were interviewed in the framework of this thesis. Indeed, looking at the definition of a CRO might justify referring to them as elites:

“A Chief Resilience Officer (CRO) is a top-level advisor that reports directly to the city mayor. Their task is to establish a compelling resilience vision for his or her city, working across departments and with the local community to maximise innovation and minimize the impact of unforeseen events” (Salkin, 2014).

Nevertheless, in this thesis, I decided to refer to the interviewees as experts. All interviewed stakeholders actively participated in the studied processes: the learning exchanges among local policymakers. This applies to the TMCN-representatives responsible for the facilitation of these exchanges or the design and setting up of learning tools and even more to the local policymakers that personally used these tools and participated in learning exchanges with their peers. Consequently, they can be classified as persons with first-hand experience and knowledge, an essential feature of an expert. Moreover, I was interested in their knowledge on and experiences in C2CL rather than in their power or status.

ii) The conditions of interviewing experts

For successfully carrying out expert interviews two key challenges needed to be met. Firstly, how to establish the contact with the experts and secondly how to ensure that he or she will share the expert knowledge?

The first challenge was mainly tackled by applying two strategies. At first, I tried to take advantage of existing contacts; particularly the contacts of my more experienced and more well networked supervisors and co-authors. In some cases, resorting to their academic and professional networks enabled the establishment of a contact with an interviewee and ultimately the realisation of an interview. However, for the cases where no initial contacts or no previous network access existed, I needed to develop an approaching strategy that aroused the interest of the experts to be interviewed. Rather than highlighting my role as Ph.D. student, I tried to put my work in a larger context pointing out the significance of the research project for practitioners and including the names and institutional affiliations of my supervisors and co-authors (e.g. IHE Delft, the largest international graduate water education facility in the world). Indeed, the social and professional status of the interviewer can be of key importance for successfully setting up and carrying out interviews with experts (Meuser and Nagel, 2009).

After successfully establishing a contact and agreeing on an interview date the next challenge was around how to maximise the chance that the interviewees share their expert knowledge. The assumption was, that the interviewee would more likely share relevant information if he or she considered the interviewer as qualified. In this context, Trinczek (2009) noted that his experience showed that the willingness of interviewees in leading positions to share their knowledge and opinions is largely influenced by their perception of the interviewer's competence and ability to present him or herself. Therefore, it is important for the interviewer to be updated on relevant events and debates (Pfadenhauer, 2002). For instance, for me this meant to be up-to-date with regards to the global debate on mitigation and adaptation and the key outcomes of the previous world climate summits. Moreover, I needed to be informed about the current progress in climate action of each town or city represented by each interviewee. For instance, am I interviewing a local decision-maker representing a pioneering and supposedly advanced municipality or a municipality that has just started tackling climate change? Additionally, as the interviewer, I needed to have a notion of the key climate change-related challenges each surveyed municipality was facing. Moreover, I informed myself about the professional biography of the experts and their recent work.

A further core component of the preparation was the development of a well-structured interview guideline (see Annexes). This was not only relevant to support the analysis of the interview data (see *iv) Analysing the interview results*) but also to showcase competence to the interviewees. In this context, Meuser and Nagel (2009) emphasised that the waving of an interview guideline bears the danger of being perceived as an incompetent or unprepared interviewer. Finally, it needs to be said that the nature of expert interviews leaves space for adapting the existing structure of questions to the knowledge shared during the interview.

iii): Expert interviews via Skype or telephone

A specific feature of the thesis interviews was that the majority of them were not conducted on-site but via Skype and to a lesser extent via telephone (depending on the preferences of the interviewees). Christmann (2009), one of the very few scholars publishing a distinct work piece focussing on telephone-based expert interviews, outlined that her research groups decision to conduct experts interviews on the telephone was driven by research-economic reasons. Also, researchers that conducted their interviews via Skype explained their choice with the same reason (see Joye, 2013).

Since the scope of the thesis was very international, research-economic reasons (travel costs and time) were also the main motivation to rely on interviews conducted via telephone or Skype. In the thesis, I focussed on transnational organisations and its members, which are dispersed all around Europe and the globe: Article 2 included a global survey of local policymakers and stakeholders

active in TMCNs with nineteen of the forty-eight interviewees being based outside of Europe. In Article 3 local policymakers and stakeholders from several European countries that participated in study visit programmes were interviewed. However, during the work on the thesis, I was based in L'Aquila (Central Italy) and completed two research stays in Delft (The Netherlands), one for four and another one for six weeks. Consequently, conducting all interviews on-site was not a feasible option.

The question was whether and how expert interviews via telephone or Skype and their results differ from interviews conducted on-site. In this context, Christmann (2009: 160) pointed out that it can be assumed that academically educated interviewees that are holding leading positions are equipped with core competencies such as “a high ability to think in the abstract, strong orientation at topical criteria, high level of competence in respect of giving explanations, experience with presenting themselves to the outside world by way of interviews, even on the telephone.” According to their positions and educational background, the same assumptions could be made for the interview partners selected for this thesis.

One advantage of interviews conducted on-site could be around the possibility to see and understand the conditions of a place and environment where the experts are based. However, in this thesis, the focus of the research was on the experts' representation of their places and even more on their reports on learning exchanges with peers from other municipalities. In turn, a detailed observation of the places represented by them was less relevant.

An undeniable disadvantage of telephone interviews compared to face-to-face interviews is posed by the loss of common and important expressions of human communication such as gestures or facial expressions (Busse, 2003 cited in Christmann, 2009). Indeed, on the telephone interviewer and interviewee have to rely on the voice of the other party as the only source of information (ibid).

The latter concern does not affect Skype interviews that accounted for the majority of the interviews conducted for this thesis. Indeed, since it can also be characterised as a face-to-face interaction, it has to be assumed that an interview via Skype is rather like a “classic” interview on-site than an interview on the telephone. In this context, I could only rely on assumptions since in the academic literature the method of Skype-based expert interviews was not yet examined or discussed. Then again, a search on Web of Science using the search terms “expert interviews” and “Skype” revealed that this method is widespread, particularly within more recently conducted research. Nevertheless, a discussion of the pros and cons of this increasingly applied mode of interview conduction was missing in all journal articles that were screened. Instead, it was just mentioned that the expert interviews were conducted via Skype (see Joye, 2013; Lewthwaite and Nind, 2016; Tunn et al., 2019). This suggests that Skype has rather silently but ubiquitously become an accepted mainstream tool for

interviewing experts that are geographically spread.

iv) Preparing and analysing the interviews

For both articles in which the method of expert interviews was applied (Article 2 and 3) the overall methodological approach was identical. At first, research gaps and key insights from the academic literature relevant to the topic were collected and grouped into a number of key themes, four for Article 2 and five for Article 3. These major themes mainly determined the guideline questions to be posed to the interviewees. The following analysis of the interview data was done through coding.

The conducted interviews were semi-structured and guided. Apart from demonstrating competence to the interviewee, the key purpose of a guideline is to ensure that the interview does not methodologically go in the “wrong” direction. In other words, the focus is not on the expert’s biography but rather on their strategies of action and the criteria for their decisions within a certain functional context (Meuser and Nagel, 2009). More importantly, a guideline supports the interview analysis process and facilitates the comparability of the given answers (ibd.).

The interviews were recorded and fully transcribed shortly after conduction. This was usually done on the same day or the day after in order to ensure that the memory of the interview was still present.

The next step focused on the sequencing of the interviews according to thematic units (Meuser and Nagel, 2009). The paraphrasing needed to follow the course of the conversation taking into account the overall messages of the experts and not just extracts of them (ibd.). Indeed, it was important to ensure that their messages were not understood and reproduced in a shortened or even incorrect manner. Therefore, at first, all interviews were separately analysed as a whole.

The following coding step allowed the thematic condensation of the interview data (Meuser and Nagel, 2009). The key aim of coding is to organise the paraphrased passages thematically (see Clifford et al., 2003; Meuser and Nagel, 2009). More precisely, through assigning “interpretive tags” to text passages coding helps to identify categories, patterns, themes, and connections in the interview data (Clifford et al., 2003: 445). The “codes do not stand alone but are part of a web of interconnected themes and categories” (Clifford et al., 2003: 448).

The following final step concerned the thematic comparison. The focus of this analytical step goes beyond individual text unit. Following the same approach as in the coding step, comparable text units from different interviews are clustered (Meuser and Nagel, 2009).

After having transcribed, paraphrased, coded and thematically compared the

interviews, the data was discussed, interpreted and linked to the discourses in the respective academic literature.

v) Acknowledging the limitations of expert interviews

Since the evidence presented in this thesis derived from interviews, they should not be considered as irrefutable facts, but rather as a mapping of the perceptions and opinions of key stakeholders. I needed to be aware that there might be restrictions on sharing knowledge and information and that the interviewees might not be willing to share all the details. Moreover, as Argyris (1986) noted, “there is often a conflict between what people say they believe and the evidence from their actions” (as cited in Kemp and Weehuizen, 2005: 17).

Despite these undeniable limitations, expert interviews still represent by far the most promising approach to explore the research question of this thesis. The focus is on learning exchanges among peers within TMCNs and these are not uncommonly also undertaken informally (see Bell and Park, 2006). Consequently, by interviewing stakeholders that directly and actively participated in the studied learning exchanges I have chosen the most suitable and qualified experts for answering the outlined research question.

However, the question arises on how to deal with the described limitations of expert interviews. More particularly, how to deal with the given answers of the interviewed experts? Indeed, I needed to treat these answers with caution. As described beforehand, I needed to prepare myself thematically and get familiar with the specific context of each municipality or TMCN represented by each interviewee. The assumption behind was that a better-informed and supposedly more competent interviewer would rather be able to get valuable insights from the interviewee. Moreover, also in the process of the interview analysis, I consulted additional sources, if available. This allowed me to double-check the given answers and to consolidate the findings. These complementary sources mainly included official documents such as climate strategies or plans or particularly for Article 3 the twinning reports that described and the visits and followed up with them.

vi) A complementary statement

During the work on the thesis, I attended several conferences and events organised by various TMCNs that allowed me to get in touch with many relevant stakeholders active in towns and cities and TMCNs. Generally, the informal exchanges with practitioners allowed me to gain additional information that was not accessible through the official channels (e.g. websites, reports). Rather than being of importance for answering specific research questions, this information helped me a lot to gain a better understanding of what is going on in these organisations and how they function. Additionally, the sharing of my subjective impressions with other researchers and TMCNs and local policymakers, helped me to be more confident about my work and to adjust and improve the work in

progress. Those informal exchanges and its findings were not highlighted in the different articles but were definitely of help for better understanding the overall phenomenon I studied.

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ARTICLE 1

Climate governance in transnational municipal networks: advancing an agenda for analysis and typology

ABSTRACT

Local governments are increasingly taking action on climate change and joining forces globally with peer municipalities facing similar challenges. This is demonstrated by a steady emergence of transnational municipal climate networks. However, despite the high number of municipalities joining those network organisations globally and despite their potential significance for climate governance, we still know little about how these organisations function. By modifying and extending an existing network typology through the development of a set of additional dimensions and indicators, this paper aims to better define, systemise, and distinguish the different networks. The conclusions drawn derive from an extensive literature review and information provided by the studied organisations. A key observation is that some networks are exclusive and only open to a limited number of municipalities, while other networks are inclusive and open to almost all municipalities. Moreover, a sharp distinction can be made between traditional public governance oriented networks and new emerging non-state funded networks that call for stronger private-public partnerships. The inclusion of new dimensions and indicators to differentiate the climate networks also raises further critical questions to be addressed by future qualitative research. These should be focused on gaining a better understanding of the role and significance of the various network partners as well as the existing collaboration in several networks.

Keywords: climate governance, global environmental governance, local level, transnational municipal climate networks.

INTRODUCTION

While nation-states increasingly struggle to deal with major global issues such as climate change, local governments are positioning themselves as alternative global actors and problem solvers (Barber, 2013; Sassen, 2013). The emergence of transnational networks of municipal governments reflects this shift. These internationally operating networks focussing on climate action are also referred to as transnational municipal climate networks (TMCNs henceforth) in the academic literature (see Hakelberg, 2014; Busch, 2015; Busch et al., 2018).

Despite the steadily growing number of TMCNs, the high number of local governments joining them globally, and their potential significance for tackling climate change, there has been little in-depth research conducted on them. We argue that there are clear signals that TMCNs are becoming influential. This manifests itself in a steadily rising number of TMCN-member municipalities, of TMCN-organisations themselves and in their increased visibility on the global stage, for instance during the world climate summits (see UN, 2014; Furh and Hickmann, 2016). However, to date, there is limited knowledge on their 'institutional architecture' (Dellas et al., 2011). Moreover, despite recent attempts (Busch et al., 2018; Gordon and Johnson, 2018, Nagorny-Koring, 2018) we still know little about their actual impacts on local climate governance (Bulkeley et al., 2003; Bulkeley, 2010; Fünfgeld, 2015; Bernstein and Hoffmann, 2018; Busch et al., 2018). How do they function, how are they governed, and who sets the agenda?

Previous publications have pointed out that more careful analysis of TMCNs is urgently required (Bouteligier, 2013; Lee, 2013; Gordon, 2013; Gordon and Acuto, 2015; Gordon, 2016). This gap was filled for a few TMCNs through a few case studies, mainly focused on Local Governments for Sustainability (ICLEI) (Feldman, 2012; Zeppel, 2013; Van Staden et al., 2014; Fenton and Busch, 2016; Archer et al., 2017; Yi et al., 2017). However, until now, most TMCNs have been generally neglected by academia while more TMCNs have emerged in recent years that are yet to be studied.

One way to better define and systemise the existing TMCNs would be through the development and application of a set of dimensions and indicators aimed at more effectively characterising and distinguishing the different organisations. To date, there is only one TMCN-typology in the academic literature, which is built around their geographical reach and the number of member municipalities. The typology was compiled by Busse (2008) and continued by Giest and Howlett (2013), Busch (2015), and Gerritsen (2016).

Drawing on the academic literature and information material provided by

several TMCNs this paper aims to build on this previous work by adding several widely ignored dimensions and indicators we consider crucial for a more effective understanding of the functioning of TMCNs. These are (i) thematic focus; (ii) spatial reach and organisation; (iii) governance; (iv) partnerships; (v) rules of access and engagement; (vi) forms of support of the members; and (vii) typologies of members. The consideration of these dimensions and indicators will lead to an improved understanding of TMCNs, an understanding that is more multifaceted than the current one and thus allows opening new chapters in the research of TMCNs. For instance by setting the conceptual ground for the development of a new typological understanding of TMCNs.

Overall, thirteen TMCNs were examined. The analysis is supported by a two-step desk research methodology consisting of an extensive and critical study of the academic literature and sources provided by the studied TMCN-organisations, mostly in the form of website information, promotional materials and reports. The results of the analysis are presented and illustrated in several infographics and tables.

The paper is organised as follows. The first part contains a review of the academic literature on TMCNs. The second part focuses on the previous TMCN-typology and on the additional dimensions and indicators proposed by the authors. The third part discusses how the different TMCNs perform against this new set of dimensions and indicators and finally in the conclusions, based on the results produced by this study, some potential avenues for future research are outlined.

INTRODUCING TRANSNATIONAL MUNICIPAL CLIMATE NETWORKS (LITERATURE REVIEW)

This section introduces climate TMCNs by drawing on current academic literature on the governance of climate change. First, the term is defined and explained, thereafter, the key advantages and weaknesses, as well as future challenges and opportunities of climate TMCNs, are explained.

UNDERSTANDING TRANSNATIONAL MUNICIPAL CLIMATE NETWORKS

The following sub-section describes how TMCNs are defined in this paper. On that basis, the criteria for the selection of the examined TMCNs were determined. The criteria are highlighted in Table 1. Moreover, the investigated TMCNs are introduced (see Figure 1).

TABLE 1 – Selection criteria for the examined TMCNs.

<ol style="list-style-type: none"> 1. Municipalities are free to join and leave. 2. Self-governance of the TMCN. 3. TMCN decisions are directly implemented by the members. 4. TMCN needs to have at least two members. 	<ol style="list-style-type: none"> 5. TMCN has headquarters and staff. 6. Organisation needs to be transnational. 7. Climate action as key component or TMCN goal. 8. Municipalities as the one key target group.
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Source: Kern & Bulkeley, 2009; Busch, 2015.

In the academic literature, six common criteria were identified to determine if an organisation qualifies as TMCN. Three criteria derive from Kern and Bulkeley (2009) and another three from Busch (2015). A further two criteria were added by the authors, resulting in eight criteria that should be met to call an organisation a climate TMCN.

According to Kern and Bulkeley (2009), the following criteria define a TMCN: firstly, member municipalities are “autonomous and free to join or leave”; secondly, “because they appear to be non-hierarchical, horizontal and polycentric, such networks are often characterised as a form of self-governance”; and thirdly, “decisions taken within the network are directly implemented by its members” (p. 309-310).

Criteria numbers four and five were added by (Busch, 2015), namely that TMCNs “need to be constituted by at least more than two member municipalities” and that there needs to be “a certain degree of formalisation and institutionalisation,” meaning that the joining municipalities “gain access to certain rights (and in most cases obligations) and that the TMCNs themselves gain agency through a formal status and infrastructure (staff, offices and headquarters)” (Busch, 2015: 6).

Moreover, a TMCN needs to be transnational, meaning that it needs to be open for member municipalities from various countries (Busch, 2015: 3). In this context, it needs to be highlighted that it is not without reason that the literature defines the examined organisations as transnational and not as multinational networks. Indeed, the adjective transnational provides a sharper characterisation of municipal climate networks than the adjective multinational.

Transnational governance can be characterised as a form of governance with “regular interactions across national boundaries when at least one actor is a non-state agent or does not operate on behalf of a national government or an international organisation” (Risse-Kappen, 1995: 3). On the contrary, multinational is defined broader and would refer to organisations that simply operate in several countries or involve members from several countries (see Cambridge Dictionary, n.d.).

Criterion number seven involves the mere presence of climate action within the policy rationale of the organisation. In this examination, every transnational municipal network that tackles climate change action is considered a TMCN. In other words, it does not matter if the organisation was explicitly established as a TMCN with climate action as the only central interest or if it was identified as a field of action later on. In either case, the organisation has to be considered a TMCN.

The last criterion concerns the scale at which local climate governance is operationalised within the organisation. There are some transnational governance organisations including the actors operating at local and sub-national level among a variety of actors within multilevel governance (e.g. national governments, regional authorities). Consequently, organisations, in which the local level was not the key target were excluded.

The TMCNs that met all the listed criteria are illustrated in Figure 1. Despite having been classified as TMCNs in some previous publications, e.g. in Giest and Howlett (2013) or Gerritsen (2016) several organisations are not part of the examination because they were not in full compliance with the listed selection criteria. Some cases are briefly explained below.

With around 240,000 members, United Cities and Local Governments (UCLG) describes itself as the largest TMCN in the world (UCLG, 2013). However, it was not included in this research since a key criterion of a TMCN is not met: an individual municipal membership. The high number of members is mainly a result of the participation of several municipal associations representing all municipalities of a respective country. In other words, in some cases, municipalities do not join UCLG as an individual member but are automatically counted as members if the municipal association of their respective country is a member.

Since only being active in one or respectively two countries the US Conference of Mayors (USA) and the Urban Sustainability Directors Network (Canada, USA) are missing a key criteria of a TMCN: Being active at the transnational level.

The Cities for Climate Protection Campaign is not recognised as a TMCN in this paper because it does not have its own secretariat or headquarters but is

managed by another TCMN, ICLEI. Therefore, in this paper, only ICLEI is part of the evaluation.

The Global Legislators Organisation for a Balanced Environment, the Clinton Climate Initiative, and the Climate Group are examples of organisations where the local level is one of the target groups but not the dominant player. Consequently, they are not considered TCMNs in this paper.

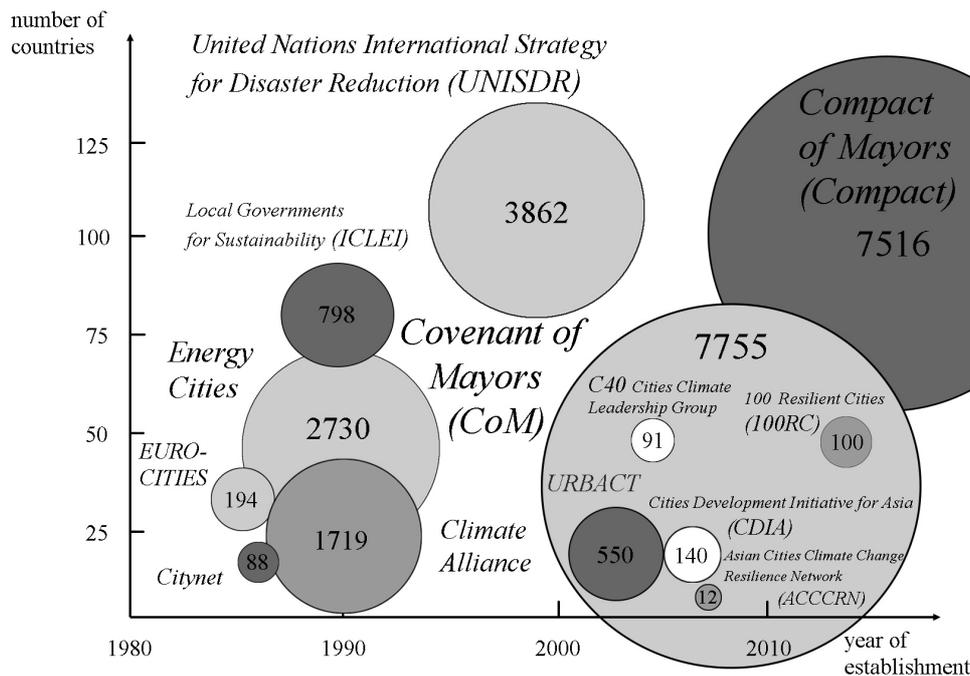


FIGURE 1 – Transnational municipal climate networks: number of members (size of the circles) and evolution through time³ (data from April 2018). Source: modified from Van Herk et al. (2016) and information provided by the examined TCMNs⁴.

Moreover, it needs to be highlighted that the Covenant of Mayors and URBACT (both initiated by the European Commission) are understood as TCMN in this paper even though they could also be defined as a pact or programme to implement EU policies. Certainly, their claim for independent governance is weaker than in other TCMN, nevertheless, they met all the listed criteria.

³ The term UNISDR refers to UNISDR's Making Cities Resilient Campaign.

⁴ Most information on TCMNs displayed in the figures and tables of this paper are derived from the following sources: Citynet, n.d.; Climate Alliance, n.d.; Compact, n.d.; CoM, n.d.; Energy Cities, n.d.; ICLEI, n.d.; URBACT, n.d.; CDIA, 2014; UNISDR, 2015; EURO-CITIES, 2017; 100RC, 2018; ACCCRN, 2018; C40, 2018. Additional sources are noted below each diagram.

TRANSNATIONAL MUNICIPAL CLIMATE NETWORKS IN THE ACADEMIC LITERATURE

This sub-section summarises the results of an extensive review and analysis of the academic literature.

TABLE 2 – Main functions and added values, weaknesses and limitations, opportunities and potential risks and challenges for TMCNs.

Functions and added values	Weaknesses and limitations
<ul style="list-style-type: none"> • Dissemination and sharing of knowledge (e.g. best practice, newsletters, experiences). • Providing or facilitating support (technical support, funding, training programmes). • Committing local governments to climate goals. • Undertaking policy evaluation. • Advocacy, lobbying, and consultancy. • Encouraging local governments to adopt policies. • In the EU: implementing EU policies. • Pooling capacities and resources towards shared goals. • Providing a platform for towns and cities to raise their profiles on the national and international level. • Providing structured processes for engaging local government. • Providing a platform for experimentation. 	<ul style="list-style-type: none"> • Often only “lightly” resourced. • Municipal commitments are not binding. • Lack of authority and democratic legitimacy. • Majority of members are located in Europe and North America. • Different degree of engagement of the members. • Passivity of many members. • From and for pioneering municipalities (at least in the beginning). • Certain focus on activities of “leading” municipalities. • Often do not provide tailored solutions for specific regions. • Conflict between meaningful contribution to global climate governance and sufficiently taking into account the local context.
Opportunities and potential	Risks and challenges
<ul style="list-style-type: none"> • Providing new political space for municipalities. • Giving the local level a voice at the national and global level. • Highlighting the importance of local governments. • Enhancing political engagement and encouraging local governments to adopt climate policies. • Setting rules or global standards, benchmarking. • Contributing to the internationalisation of urban environmental governance. • Translation between disciplines and better communication of science to local decision-makers. • Catalysts for future climate negotiations. • Using soft-power elements (e.g. promoting value change and policy emulation). • Stimulating learning among local governments. 	<ul style="list-style-type: none"> • Often strongly dependent on external supporters or funders (TMCN and member municipalities). • Government changes or changes of political priorities can threaten the continuance of the membership. • Local policymakers are highly dependent on many other actors (central government, other local actors, legislation). • Urban elites and new powerful groups that are not democratically legitimised are gaining ground. • TMCN-related activities are often considered as voluntary work. • Local actors often do not use scientific knowledge and tools (developed or transferred by a TMCN) effectively.

Source: all sources listed in “Transnational municipal climate networks in the academic literature.”

Rather than summarising the entire literature, the focus is on four key dimensions of TMCNs: the “functions and added values” and “weaknesses and limitations” represent a description of the status quo. The “opportunities and potential” and “risks and challenges” list contemporary and future opportunities and threats (see Table 2). The organisation of the academic literature into these four categories was inspired by the SWOT (strengths, weaknesses, opportunities and threats) analysis technique. The SWOT technique is a

commonly used tool for the analysis of enterprises or organisations distinguishing between internal and external environments (Ghazinoory et al., 2011). Internal environments are composed of strengths and weaknesses (here: *Functions and added values* and *Weaknesses and limitations*) and represent factors that can be directly influenced by the examined organisation (in this case TMCNs). External environments are composed of opportunities and risks (here *Opportunities and potentials* and *Risks and challenges*) that cannot be directly influenced by the examined organisation but that can have major impacts on them.

A: Functions and added values

An often-mentioned function fulfilled by TMCNs is that they provide a platform for the dissemination and sharing of knowledge (Baycan et al., 2006; Andonova et al., 2009; Gustavsson et al., 2009; Kern and Bulkeley, 2009; Leutelt, 2010; Feldman, 2012; Bouteligier, 2013; Zeppel, 2013; James and Verrest, 2015; Fenton and Bush, 2016; Mejía-Dugand et al., 2016; Nagorny-Koring, 2018). This can stimulate processes of mutual learning among local governments (Leutelt, 2010; Lee and van de Meene, 2012). Besides, TMCNs provide or facilitate various forms of support, e.g. technical assistance, training programmes, or facilitate access to funding (Kern and Bulkeley, 2009; Leutelt, 2010; Feldman, 2012; Fünfgeld, 2015). Further TMCN functions identified include: i) committing local governments to climate goals (Andonova et al., 2009; Busch, 2015, Gordon and Johnson, 2018); ii) undertaking policy evaluation (Feldman, 2012; Fenton, 2015); iii) acting as consultants for the member municipalities (Busch, 2015; Busch et al., 2018); iv) encouraging local governments to adopt climate policies (Rashidi and Patt, 2018); and v) advocacy and lobbying for the local level and climate action (Kern and Bulkeley, 2009; Bouteligier, 2013; Busch, 2015).

Looking at Europe, the function of the TMCN can also be to implement and achieve EU policy goals (Busch et al., 2018) “without necessarily having to engage directly with nation-states” (Kern and Bulkeley, 2009: 328).

With regards to the benefits that arose from membership of a TMCN, Fünfgeld and Granberg et al. (both 2015) highlighted that it provides the opportunity for municipalities to pool capacities and resources to achieve common goals. Triggering local capacity building and enhancement was indeed seen as one key service that TMCNs could offer to its members (Andonova et al., 2009; Gustavsson et al., 2009; Bulkeley and Jordan, 2012; Feldman, 2012; Bouteligier, 2013; Gordon, 2013; Fünfgeld, 2015; Fenton, 2015; Busch et al., 2018). Also, many TMCNs provide towns and cities with a platform to raise their profile at the national and international level (Lidskog and Elander, 2010; Fünfgeld, 2015; Fenton and Bush, 2016). Thus, both local governments and TMCNs can demonstrate international leadership (Leutelt, 2010). Additional mentioned benefits resulting of a TMCN-membership include: i) “a structured process for engaging local government officials from across different

organisational units” (Fünfgeld, 2015: 71); and ii) a platform for experimentation for municipalities (Fenton, 2015).

B: Weaknesses and limitations

TMCNs are faced with several problems and limitations. For instance, many of them are lightly resourced and staffed (Kern and Alber, 2009; Goldstein et al., 2016). With few exceptions, they do not have the resources to run their own funding programmes (Kern and Alber, 2009). Additionally, in many cases, member’s commitments are voluntary and thus not binding (Rosenau, 2004; Kern and Alber, 2009; Kern and Bulkeley, 2009). This lack of authority makes it difficult for the organisation to insist on the guidelines since not complying “has no immediate effect, as there is no enforcing body or responsibility towards other cities” (Giest and Howlett, 2013: 12).

Supposedly, this voluntary characteristic leads to another severe problem that affects all TMCNs: a lack of democratic legitimation (Bulkeley et al., 2003; Khan, 2013). In this context, Aars and Fimreite (2005: 244) outlined that “networks are predominantly legitimised on the basis of the results they achieve, not the processes through which they are reached.” Along with the issue of democratic legitimation there is the concern of “politics increasingly carried out by closed elites” (Khan, 2013: 133).

Most municipalities active in climate TMCNs are located in North America and Europe (Bansard et al., 2017). Indeed, TMCNs as a whole cannot (yet) be fully regarded as a global phenomenon. Another imbalance within many TMCNs concerns the type of member municipalities. Generally, an overrepresentation of certain kinds of municipalities, usually larger or frontrunner towns and cities, could be observed (McFarlane, 2010; Robinson, 2011). In turn, smaller municipalities often lack the capacities to be active TMCN-members contributing to the network’s goals (Mejía-Dugand et al., 2016: 14).

For instance, within the CoM particularly the medium-sized municipalities (Reckien et al., 2015) and municipalities from countries without effective national fundings schemes (Haupt, 2018) often fail in developing and implementing a climate and energy action plan, the overall goal of the CoM initiative. Moreover, in some TMCNs there is the tendency to ‘focus on leading municipalities with high levels of capacity to be involved, while excluding other TMCN-members who are unable to engage in activities at the level offered’ (Fünfgeld 2015: 71). Indeed, especially in the early years, many TMCNs could be characterised as “networks of pioneers for pioneers” (Kern and Bulkeley, 2009: 329). In this context, Fenton and Busch (2016) suggest that TMCNs need to find a way to represent typical and more ambitious members at the same time.

Gupta et al. (2015) expressed the concern that the significance of local particularities is not sufficiently considered when transferring ideas from one

context to another. In that regard, Giest and Howlett (2013: 12) noted that especially globally acting TMCNs “do not offer concrete action for a specific region, which means there are no tailored actions that can be taken once a city joins that kind of network.” However, in turn, there is also the concern that “cities as global climate governors face considerable hurdles if they are to contribute to meaningful global climate governance while continuing to respond to the practicalities and particularities of local conditions and context” (Gordon and Acuto, 2015: 77). These two opposing views highlight the conflicting priorities of sufficiently taking into account both the local context and solutions that work in more than just one specific place.

C: Opportunities and potentials

TMCNs opened up new opportunities for municipalities, and there are several observable and conceivable (future) potentials. One is to provide new political spaces for localities (Leitner and Sheppard, 2002; Giest and Howlett, 2013). In other words, TMCNs override territorial borders of political systems and thus give members “the opportunity to challenge extant state structures and relations” (Leitner and Sheppard, 2002: 509-10). Additionally, TMCNs are increasingly considered as organisations representing and giving the local level a voice at the national and international level (Leutelt, 2010; Feldman, 2012; Zeppel, 2013; Bulkeley and Betsill, 2013). They can also help to highlight the critical role of the local level in sustainable development (Bulkeley et al., 2003) and climate change action (Barber, 2013). Consequently, they can increase political engagement at the local level (James and Verrest, 2015; Rashidi and Patt, 2018) and contribute to putting climate governance into practice (Kern, 2014). Rashidi and Patt (2018) highlighted that there is already qualitative evidence that TMCNs encouraged and assisted municipalities in adopting climate policies.

TMCNs have already distinguished themselves as providers of guidelines (Kern and Alber, 2009) and as setters of rules (Andonova et al., 2009; Bulkeley and Jordan, 2012; Busch et al., 2018) and benchmarks (Bulkeley et al., 2003; Baycan et al., 2006; Fünfgeld, 2015; Granberg et al., 2015; Gordon, 2016; Trencher et al., 2016).). Furthermore, TMCNs are increasingly important for ‘international advocacy (Fünfgeld, 2015; Busch et al., 2018) and the internationalisation of urban environmental governance’ (Fünfgeld, 2015: 68). Feldman (2012) highlighted that they could serve as platforms for scientists, local, and regional policymakers, government agencies, and non-government organisations (NGOs). Here, they could act as a translator between disciplines.

Further identified potentials see TMCNs as: i) organs to inform and shape national and international policies, e.g. within the EU (Bulkeley and Betsill, 2013); ii), catalysts for future international climate negotiations, particularly if nation-states continue to achieve insufficient negotiation results (Hickmann, 2016); and iii) influential soft-power elements within global environmental governance, e.g. through promoting policy emulation and value change, that

might allow them to someday become global coordinators of regional and local environmental policy innovations (Feldman, 2012).

D: Risks and challenges

A key challenge for local administrations is to ensure the financing of their climate actions. Many members are highly dependent on external funding (Bulkeley et al., 2003; Fuhr and Hickmann, 2016). Additionally, TMCNs are dependent on funding from supporting organisations or sponsors (Bulkeley et al., 2003; Bulkeley et al., 2013; Goldstein et al., 2016).

Not uncommonly, a fair amount of resources (e.g. staff, financial means) comes from local politicians who repeatedly need to be convinced about the added values of a membership (Mejía-Dugand et al., 2016). Moreover, local governments are often dependent on further administrative levels, such as the central or regional government. This particularly concerns the areas of resource allocation, legislation as well as the respective institutional frameworks (Aall et al., 2007; Betsill and Bulkeley, 2007; Granberg and Elander, 2007).

As mentioned before, from a democratic standpoint, another challenge for TMCNs is the ambiguous legitimation of the decision processes (Khan, 2013). There is the danger “that elite groups dominate networks leading instead to a concentration of power and influence” (Khan, 2013: 138). The often rather informal character of many network activities (Bell and Park, 2006) appears likely to even boost this risk.

Further risks for TMCNs address the role of the local policymakers that manage the network activities and implement the local climate policies. Ensuring a certain level of engagement within the TMCN remains a difficult task since TMCN-memberships are voluntary and thus often not considered as part of the local policymakers work (Goldstein et al., 2016). Moreover, the scientific knowledge and tools developed or provided by TMCNs are often not used effectively by local actors (Sarewitz and Pielke, 2007).

DIFFERENTIATING TRANSNATIONAL MUNICIPAL CLIMATE NETWORKS (FINDINGS)

This section focuses on how to differentiate the different TMCNs. It is divided into two parts. First, the existing TMCN-typology is explained, thereafter, we present and apply a new set of dimensions and indicators to further differentiate TMCNs.

CURRENT TYPOLOGY

Referring to the existing typology TMCNs could be differentiated according to the regional scope and the number of members, as described by Busse (2008) and continued by Giest and Howlett (2013), and Gerritsen (2016). Busse distinguished two couples of mutually exclusive categories of TMCNs, identifying regional and global high-profile networks and regional and global in-depth networks. The examined TMCNs were grouped according to Busses typology in Table 3.

TABLE 3 – Typology of TMCNs.

	Global	Regional
Few members	Global high-profile networks <ul style="list-style-type: none"> • 100RC • C40 	Regional high-profile networks <ul style="list-style-type: none"> • ACCRN • CDIA • Citynet • EUROCITIES
Many members	Global in-depth networks <ul style="list-style-type: none"> • Compact of Mayors (Compact) • ICLEI • UNISDR 	Regional in-depth networks <ul style="list-style-type: none"> • Climate Alliance • CoM • Energy Cities • URBACT

Source: modified from Busse, 2008; Giest & Howlett, 2013; Gerritsen, 2016.

Regional networks can be distinguished from global networks by their regional activity. In more detail, regional networks are only open to municipality's of certain world regions (e.g. Europe or Asia) and thus also only have their offices there while global networks are open to municipality's worldwide. Regional and global high-profile networks "raise awareness for one issue, but often fail to implement substantial policies" whereas global and regional in-depth networks "are defined by intense cooperation with less publicity, but also limited scope" (Giest and Howlett, 2013: 350). The characteristics of regional and global high profile and in-depth networks mostly correspond to each other with the main difference that the regional networks are limited to one world region and thus do not have a global impact (Busse, 2008; Kameyama et al., 2008). Among the examined TMCNs, there are eight regional networks, three from Asia and five from Europe.

In sum, "while in high-profile networks well-known cities lead by example, in-depth networks formulate climate change plans together and act on them individually and collectively" (Giest and Howlett, 2013: 351).

SET OF NEW DIMENSIONS AND INDICATORS

To date, the literature has provided us with a typology of TMCNs, distinguishing them according to their geographical scope and the number of members. While this paper does not generally deny the accuracy of this typology, it does suggest extending it by adding several dimensions and indicators whose identification was inspired by the study of the academic literature on TMCNs and the analysis of information provided by the studied TMCNs such as website information, promotional materials and reports (see Table 4). Each of them is introduced and explained in more detail in each of the following seven sub-sections.

TABLE 4 – Set of new dimensions and indicators for the differentiation of TMCNs.

<i>Dimensions and indicators</i>	<i>Description</i>
A: Thematic focus	<ul style="list-style-type: none"> Operationalisation of climate change - mitigation or adaptation - and its centrality against other issues.
B: Spatial reach and organisation	<ul style="list-style-type: none"> Operational scale (global, regional). Internal articulation as to operate this scale.
C: Governance	<ul style="list-style-type: none"> Presence of a major founding and funding institutions. Existence of a collective body taking decisions.
D: Partnerships	<ul style="list-style-type: none"> Existence and breadth of inter TMCN collaborations. Existence and breadth of partnerships and kinds of partners involved.
E: Rules of access and engagement	<ul style="list-style-type: none"> Commitments implied by the membership on behalf of the members. Rules and mechanisms presiding over the access to membership.
F: Forms of support of the members	<ul style="list-style-type: none"> Forms of funding and organisational support. Forms of peer-to-peer and networking practices. Ratio between the size of staff and member municipalities.
G: Typologies of members	<ul style="list-style-type: none"> Incidence of certain types of cities as defined by the GAWC ranking.

Source: own table.

A: Thematic focus

Originally, most TMCNs have focused on mitigation, rather than on adaptation or resilience (Fünfgeld, 2015). However, nowadays, most TMCNs regard adaptation and, increasingly, resilience as further necessary components of local climate action. Table 5 highlights the variation of the main focuses of the examined TMCNs. The allocation to the different main thematic focus was based on the self-declared goals and focus areas of the TMCNs. For instance, the CDIA claims to “promoting sustainable and equitable urban development” (CDIA, 2014) and URBACT states their goal is to help “cities to develop pragmatic solutions that are new and sustainable and that integrate economic, social and environmental urban topics” (URBACT, n.d.). Besides, in some TMCNs there are specific commitments of the members, such as developing an energy transition action plan (Energy Cities) or reducing greenhouse gas

emissions by 10% every 5 years (Climate Alliance). These commitments are presented in more detail in “E: Rules of access and engagement”. Moreover, there are TMCNs whose focus already ensues from their name (e.g. 100 Resilient Cities, the Asian Cities Climate Change Resilience Network or UNISDR’s Making Cities Resilient Campaign).

TABLE 5 – Thematic focus of the TMCNs.

<i>Main thematic focus</i>	<i>TMCNs</i>
Climate change mitigation	C40, Climate Alliance, Energy Cities
Climate change mitigation and adaptation	Compact, CoM
Sustainable development	CDIA, Citynet, ICLEI, URBACT
Resilience	ACCCRN, 100RC, UNISDR
Local government affairs	EUROCITIES

Source: information provided by the examined TMCNs.

Apart from the resilience networks 100RC, ACCCRN, and UNISDR, all examined TMCNs are occupied with both mitigation and adaptation and some with resilience. Indeed, most initially mitigation-focused TMCNs extended their scope in recent years to also offer adaptation (see CoM, n.d.; ICLEI Europe, 2018). However, some TMCNs that started tackling adaptation still have their main focus on mitigation (e.g. C40, Climate Alliance, Energy Cities).

Also, the mentioned resilience networks varies substantially regarding their resilience focus: ACCCRN works on urban climate change resilience, UNISDR mainly deals with (increasingly climate change induced) disaster risk reduction, whereas 100RC regards itself as a network that holistically tackles urban resilience while also taking into account social, economic, and physical resilience (UNISDR, 2015; 100RC, 2018; ACCRN, 2018).

There are also TMCNs that work on sustainable development (Citynet in Asia and URBACT in Europe) with climate action being one of the core components (Citynet, n.d.; URBACT, n.d.).

EUROCITIES is a special case as that was initiated by eleven big European cities in 1986 (EUROCITIES, 2017). Initially, the focus was on urban economic recovery. Later, EUROCIITIES defined itself increasingly as an organisation that tackles urban issues and challenges. In line with the general development, local climate action became an important component of EUROCIITIES thematic scope (EUROCITIES, 2017).

B: Spatial reach and organisation

As outlined by Busch (2015), there has to be a formal infrastructure for such an organisation to be understood as a TMCN. Namely, a headquarters or

secretariat and further offices (see Figure 2). This sub-section briefly illustrates those aspects for the examined TMCNs.

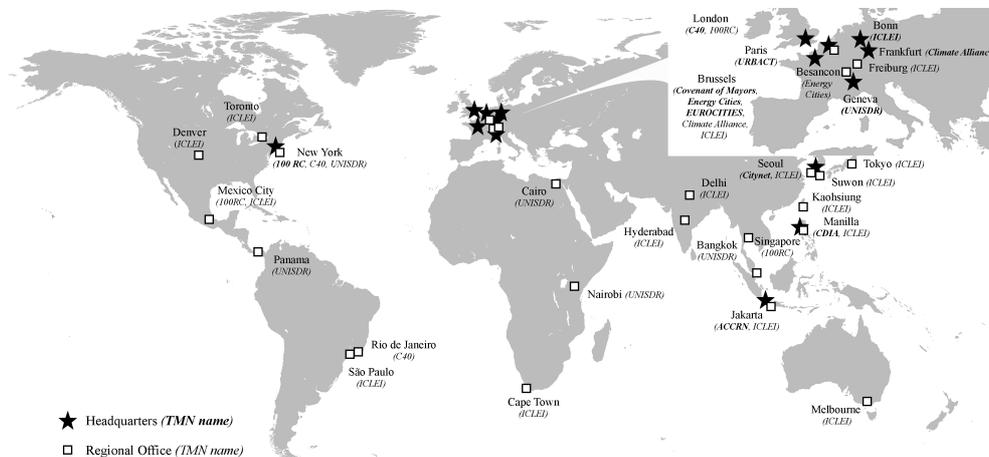


FIGURE 2 – TMCN-headquarters and regional offices. Source: information provided by the examined TMCNs.

Eight of the examined TMCNs have their headquarters in Europe, three in Asia, and one in North America. As expected, the headquarters of regionally operating TMCNs are to be found in the respective region.

Many globally operating TMCNs have several regional offices to better coordinate and serve the needs of the members from a certain world region. ICLEI leads the list by far with sixteen regional offices on six continents followed by UNISDR (5) and 100RC and C40 (both 2) (see Figure 2). Moreover, a closer look at the locations of the headquarters and regional offices shows that there are some spatial hotspots hosting several offices of various TMCNs. An extreme case of such an agglomeration phenomenon is Brussels with three headquarters and two regional offices. Moreover, New York hosts one headquarter and two regional offices, while London, Mexico City, Jakarta, and Manila each have two different TMCN offices.

Shifting the focus from the organisation and infrastructure to the member municipalities that constitute each TMCN, Figure 2 highlights their distribution over the globe. Indeed, it was mentioned before that most municipalities active in TMCNs are located in Europe and North America (see Bansard et al., 2017). Figure 3 does not only show the clustering of TMCNs in certain world regions but also highlights that in Europe in particular there is a strong tendency of municipalities to be active in several TMCNs at the same time.

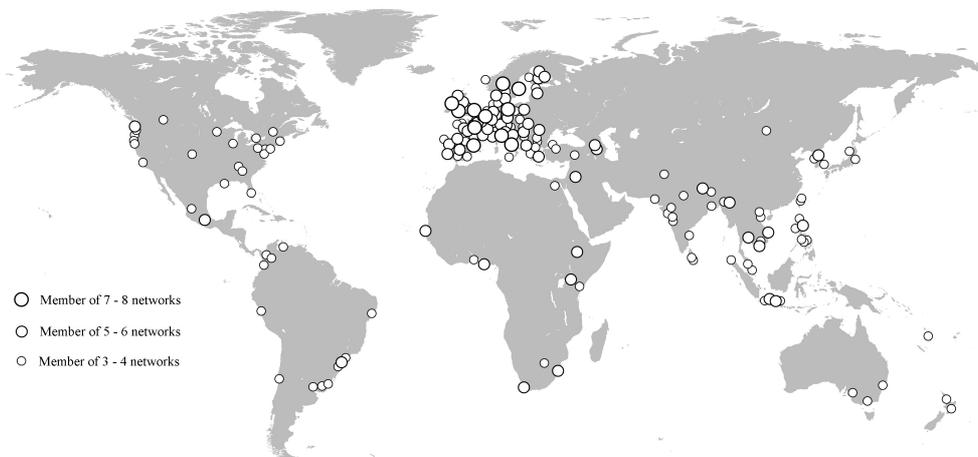


FIGURE 3 – Global distribution of municipalities with multiple TMCN-memberships. Source: information provided by the examined TMCNs.

C: Governance

The academic literature has, on one side, put into value the supposed network-like, bottom-up governance of early TMCNs (Kern and Bulkeley, 2009) while on the other criticizing the supposed lack of legitimacy and transparency of some TMCN-operations (Bulkeley et al., 2003; Khan, 2013). This sub-section briefly introduces the different bodies in charge of governing the examined TMCNs.

The different models of governing a TMCN are also reflected by their different emergence histories. The origins of the TMCNs and the main driving forces behind their emergence vary widely (see Table 6). However, three main genesis patterns can be distinguished: there are TMCNs that were initiated by local governments (e.g. C40, Energy Cities, EUROCITIES, the Climate Alliance, and ICLEI), while others were initiated by supranational institutions (e.g. CoM, Energy Cities, and URBACT by the EC, and UNISDR by the UN), and yet others that were established by a foundation (e.g. ACCCRN and 100RC by the Rockefeller Foundation). The Climate Alliance represents a mixed form, since it was initiated by municipalities and several environmental NGOs (Climate Alliance, n.d.).

The institutional genesis of the TMCs is reflected in their governance design. Two very different models could be identified: one in which the main deliberative bodies are elected by the members and include or fully consist of representatives of the member municipalities; and one in which advisory governing bodies consisting of unelected members, many of them being non-municipal stakeholders (see Table 6). The governance bodies of URBACT,

UNISDR, the CDIA, and ACCCRN do not include any elected local representatives while the governance bodies of the Compact, CoM, Energy Cities, and EUROCITIES are exclusively composed of such. In this context, it needs to be stressed again that URBACT and the CoM are EU programs and linked to the EU governance framework.

TABLE 6 – Governance of the TMCNs.

<i>TMCN</i>	<i>Initiated or launched by</i>	<i>Main Governance body</i>	<i>Election of the Governance body?</i>
100RC	Rockefeller Foundation	Rockefeller Foundation and 100RC staff and <i>City Leader Advisory Committee</i> (9 global city leaders)	No
ACCCRN	Rockefeller Foundation	<i>Advisory Group</i> (10 advisers from NGOs and research)	No
C40	18 mayors of megacities	<i>Directory Board</i> (President: Michael Bloomberg, representatives of Bloomberg Philanthropies, CIFF ⁵ , Realdania, Clinton Foundation, local representatives of London, Paris, and Durban), <i>Steering committee</i> (15 mayors)	Yes
CDIA	Asian Development Bank, German government	<i>Programme Review Committee</i> (Asian Development Bank, (national administration bodies of Germany, Sweden, Austria, and Switzerland))	No
Citynet	UNESCAP, UNDP and UN-Habitat ⁶	Citynet staff and 6 advisers from research, the local level, and former UN representatives	No
Climate Alliance	Local authorities and indigenous organisations	<i>Executive board</i> (up to 13 local representatives and indigenous partner organisation COICA) ⁷	Yes
Compact	UN, Bloomberg Philanthropies	<i>Board</i> (10 mayors and local representatives)	Yes
CoM	EC	<i>Political board</i> (7 mayors and local representatives)	Yes
Energy Cities	EC	<i>Board of directors</i> (President: mayor of Heidelberg, 10 mayors, deputy mayors, and counsellors)	Yes
EUROCITIES	Mayors of 6 European cities	<i>Executive committee</i> (12 mayors)	Yes
ICLEI	Local and national authorities	<i>Global executive committee</i> (mostly mayors), <i>regional executive committee</i> (mostly mayors), <i>ICLEI Council</i> (members of 9 regional executive committees)	Yes
UNISDR	UN	UN secretariat and UNISDR staff	No
URBACT	EC	EC and URBACT staff	No

Source: information provided by the examined TMCNs.

D: Partnerships

One trend that is becoming increasingly evident is the inclusion of several actors in TMCN-activities and the establishment of cross-TMCN collaborations.

⁵ CIFF: Children’s Investment Fund Foundation.

⁶ UNESCAP: Economic and Social Commission for Asia and the Pacific. UNDP: UN Development Programme.

⁷ COICA: Coordinadora de las Organizaciones Indígenas de la Cuenca Amazónica.

These actors, for instance private companies or NGOs, act as participants and providers of solutions. The following subsection provides an overview of the different partner organisations that formally collaborate with the examined TMCNs. Indeed, all TMCNs have formal collaborations with partners from several very different fields and sectors (see Table 7).

TABLE 7 – Kinds and numbers of partners of the TMCNs.

<i>TMCN</i>	<i>NGOs and foundations</i>	<i>Research</i>	<i>State actors</i>	<i>Supra-national actors</i>	<i>Consultants and advisors</i>	<i>Further private partners</i>
100RC	23	9	5	2	12	57
ACCCRN	7	9	/	1	6	/
C40	11	1	3	1	1	10
CDIA	4	3	8	2	/	1
Citynet	2	1	4	7	/	/
Climate Alliance	1	/	/	/	/	/
Compact	7	1	2	/	/	1
CoM	/	/	/	4	/	/
Energy Cities	/	/	5	/	/	1
EURO-CITIES	1	/	/	4	/	1
ICLEI	9	10	13	4	1	5
UNISDR	6	9	13	10	/	/
URBACT	/	1	/	16	/	/

Source: information provided by the examined TMCNs.

According to the information provided by the TMCNs, they all formally collaborate with at least one other TMCN (see Table 8). In this regard, ICLEI is the most connected TMCN, collaborating with seven other TMCNs. It is also notable that the TMCNs active in Europe collaborate very closely with each other. For instance, CoM, EURO-CITIES, Energy Cities, and the Climate Alliance jointly run a twinning programme to connect European municipalities for study visits in climate adaptation and mitigation (CoM, 2017). Indeed, the EU through the EC, aims to implement EU policies at the local level and has identified TMCNs as one instrument to do so. This applies particularly to Energy Cities, CoM, and URBACT which were established by the EC and receive instructions from it.

Other partners variably related to TMCNs were functionally grouped, as shown in Table 7. It is striking that the number of partners varies significantly from TMCN to TMCN. 100RC list 108 partners on their website and thus tops the list by far. It is followed by ICLEI (42), UNISDR (38), and C40 (27). Taking into account the very few member municipalities (12) and the low number of staff members (5), ACCCRN has a comparatively high number of partners (23). In contrast, the European TMCNs have few formal partners: EURO-CITIES (6), Energy Cities (6), CoM (4), and the Climate Alliance (1). Looking at the different types of partners, further patterns of differentiation can be identified.

On the one hand, there are TMCNs with a dominance of non-public partners, such as NGOs, private partners, or others. This applies particularly to 100RC, ACCRN, ICLEI, and C40.

TABLE 8 – TMCNs collaboration with other TMCNs.

	100RC	ACCRN	C40	CDIA	Citynet	Climate Alliance	Compact	CoM	Energy Cities	EUROCITIES	ICLEI	UNISDR	URBACT
100RC			X	X							X		
ACCRN											X		
C40	X						X				X		
CDIA	X				X						X		
Citynet				X							X	X	
Climate Alliance							X	X					
Compact			X			X		X	X	X	X		
CoM						X	X		X	X			
Energy Cities							X	X		X			X
EUROCITIES							X	X	X				X
ICLEI	X	X	X	X	X		X						X
UNISDR					X								
URBACT									X	X	X		

Source: information provided by the examined TMCNs.

On the other hand, there are TMCNs that have almost exclusively state actors (e.g. provinces or regions) or supranational actors (e.g. the EU) as partners. Those TMCNs are the European TMCNs EUROCIITIES, Energy Cities, CoM, and URBACT, and the Asian TMCN Citynet.

One particular case is the Climate Alliance, which only lists one formal partner on its website (apart from the TMCNs they collaborate with): the Coordination of the Indigenous Organisations of the Amazon Basin (COICA), an umbrella organisation of indigenous organisations in the Amazon region (Climate Alliance, n.d.). The Climate Alliance regards itself as a network of municipalities whose members enter into a moral partnership with the inhabitants of the Amazon basin (Climate Alliance, n.d.). More specifically, they do this through local climate action, mainly mitigation projects where the members contribute to the preservation of the tropical rainforests, the basis of life for indigenous groups living in the Amazon basin (Climate Alliance, n.d.).

E: Rules of access and engagement

Since early phases, scholars' attention has also been focusing on the ways in which TMCN regulate access of members and bond their actions so as to achieve their (common) goals (see Fünfgeld, 2015). This sub-section examines questions such as: who and how can a municipality join the TMCN (do the member municipalities have to pay a membership fee, are they selected through an application process)? What are the specific commitments the members have to comply with? These points are indicated for each TMCN in Table 9.

The TMCNs have different approaches to financial management (e.g. staff and programmes). The most common way is to finance the organisation mainly through a (usually annual) membership fee that each municipality has to pay. Usually, the amount of the fee is dependent on variables such as the population and the gross domestic product (GDP), as in the case for ICLEI and Energy Cities (Energy Cities, n.d.; ICLEI, n.d.). In other cases, funding comes from a foundation (100RC, ACCCRN, and C40) and therefore there are no membership fees.

Participation criteria differ among the TMCNs (see Table 9). Some TMCNs, namely C40, 100RC, ACCCRN, and, to a certain extent, EUROCITIES, have a strong element of exclusivity. These TMCNs are restricted to a limited number or type of municipalities, and some have a competitive application and selection process (100RC, ACCRN, and C40).

100RC selected its members through an application process looking “for innovative mayors, a recent catalyst for change, a history of building partnerships and an ability to work with a wide range of stakeholders” (100RC, 2018).

C40 originally only addressed megacities, but then opened to so-called innovator cities: “cities that do not qualify as megacities but have shown clear leadership in environmental and climate change work” (Marinello, 2012).

EUROCITIES maintains exclusivity mainly through allowing only cities with a minimum population of 250,000 to join.

By contrast, some TMCNs are open to all kinds of municipalities. This includes Compact, ICLEI, and UNISDR, which operate at the global level, and Climate Alliance, CoM, Energy Cities, and URBACT, which operate at the regional or European level (see Table 9).

Another integral rule of engagement is the specific commitments a municipality takes on when it joins a TMCN. Table 9 shows that this is by no means the case for all TMCNs. Indeed, 7 out of the 13 examined TMCNs do not have specific commitments. In most cases, this commitment consists of the development and implementation of a plan or strategy (100RC, CDIA, CoM, Energy Cities). In this

regard, CDIA is different to the other TMCNs as it made the a-priori development of a strategy or plan an admission criterion.

TABLE 9 – Rules of engagement of the TMCNs.

<i>TMCN</i>	<i>Member-ship fee</i>	<i>Kinds of members (who can join the TMCN)</i>	<i>Specific commitments of the members</i>
100RC	No	Local entities worldwide	Developing a <i>City Resilience Strategy</i>
ACCCRN	No	South/South-east Asian cities	None
C40	No	Megacities and innovator cities	None
CDIA	No	Asian local entities	Adopting an <i>urban development strategy</i> and/or <i>integrated urban development plan</i> (a priori)
Citynet	Yes	Asian local entities, NGOs, private companies and research centres	None
Climate Alliance	Yes	European local entities	Reducing greenhouse gas emissions by 10% every 5 years
Compact	No	Local entities worldwide	Complying with the <i>Common Global Reporting Framework</i>
CoM	No	European local entities	Developing a <i>sustainable energy and climate action plan</i>
Energy Cities	Yes	European local entities	Developing an <i>energy transition action plan</i>
EUROCITIES	Yes	European local entities (population > 250,000 inhabitants)	None
ICLEI	Yes	Local entities and regions worldwide	None
UNISDR	Yes	Local entities worldwide	None
URBACT	No	European local entities	None

Source: information provided by the examined TMCNs.

F: Forms of support of the members

As underlined by the literature, one of the TMCN strengths is their ability to support its members (see Kern and Bulkeley, 2009; Leutelt, 2010; Feldman, 2012; Bulkeley, 2013; Fünfgeld, 2015). To assist and support the members, e.g. in successfully fulfilling the described commitments or only comply with the network's goals, all TMCNs provide its members with several tools. For instance, all have a newsletter and regularly organise webinars and events (e.g. conferences and workshops). Additionally, several TMCNs run formal programmes connecting selected members to initiate peer learning exchanges and study visits (Energy Cities, n.d.; ICLEI, n.d.; CoM, 2017; 100RC, 2018; ACCCRN, 2018;).

A special form of support is provided by 100RC. Here, the organisation provides funds for a chief resilience officer for all its members. This local policymaker is in charge of developing and implementing the resilience strategies (100RC, 2018).

Furthermore, each 100RC city is assisted by a consultant selected and paid by

the organisation to develop the resilience strategy (100RC 2018). Further criteria that might permit drawing conclusions on the support and assistance offered to the members are the number of staff working for each TMCN and its numerical relation to the overall number of members (see Table 10). The table shows that some TMCNs are characterised by a high number of staff members, especially in relation to the number of member municipalities. This applies particularly to C40 and 100RC. This heavily contrasts with those TMCNs that have a high number of members and little more than a handful of employees. Notable among these are the Climate Alliance, Energy Cities, and CoM.

TABLE 10 – Number of staff and number of members (in brackets) of the TMCNs.

<i>TMCN</i>	<i>Staff and members</i>	<i>TMCN</i>	<i>Staff and members</i>	<i>TMCN</i>	<i>Staff and members</i>
100RC	82 (100)	Citynet	14 (88)	Energy Cities	25 (2730)
ACCCRN	5 (12)	Climate Alliance	15 (1719)	EUROCITIES	48 (194)
C40	116 (91)	Compact	n.a. (7516)	ICLEI	254 (798)
CDIA	21 (140)	CoM	13 (7755)	UNISDR	~100(3862)
URBACT	14 (550)				

Source: information provided by the examined TMCNs.

G: Typologies of members

The rules of engagement sub-section highlighted that TMCNs are open to different member municipalities. Depending on their exclusivity or inclusivity and their overall number of members, the diversity of members varies widely. This sub-section focuses on the composition of the TMCNs. As a term of reference and based on the recognition that such rankings have in some of the TMCNs we use the framework elaborated by the Globalization and World Cities Research Network (GaWC) to distinguish cities globally according to their connectivity and economic power (see GaWC, 2016). This distinguishes cities into different levels of world cities. This framework was applied to all the members of the examined TMCN as highlighted in Figure 4.

In line with the observation from the previous sub-section, the figure highlights that most of the exclusive networks, except for ACCCRN, also have the highest share of world cities. Those are, in order, C40, 100RC, and EUROCIITIES (see Figure 4).

Apart from some cities that are included because they are considered “innovator cities,” such as Heidelberg, Rotterdam, and Venice, C40 can be regarded as a gathering of the world’s biggest, most internationalised, and most economically powerful cities: twenty-four of the thirty largest megacities in the world are C40-members, thirty-eight C40 cities are classified as global alpha cities, and among the ten world cities with the highest overall GDP, eight have joined C40

(GaWC, 2016; UN, 2016; Trujillo and Parilla, 2016; C40, 2018).

100RC also has a fair number of global megacities: ten of the thirty largest megacities are members, twenty-three are classified as global alpha cities, and seven belong to the ten world cities with the highest overall GDP (GaWC, 2016; UN, 2016; Trujillo and Parilla, 2016; 100RC, 2018). However, 100RC also provides a platform for small towns with supposedly innovative approaches or ambitious resilience goals, such as Boulder (Colorado), Vejle (Denmark), Byblos (Lebanon), and Ramallah (Palestine Territories) and others (100RC, 2018).

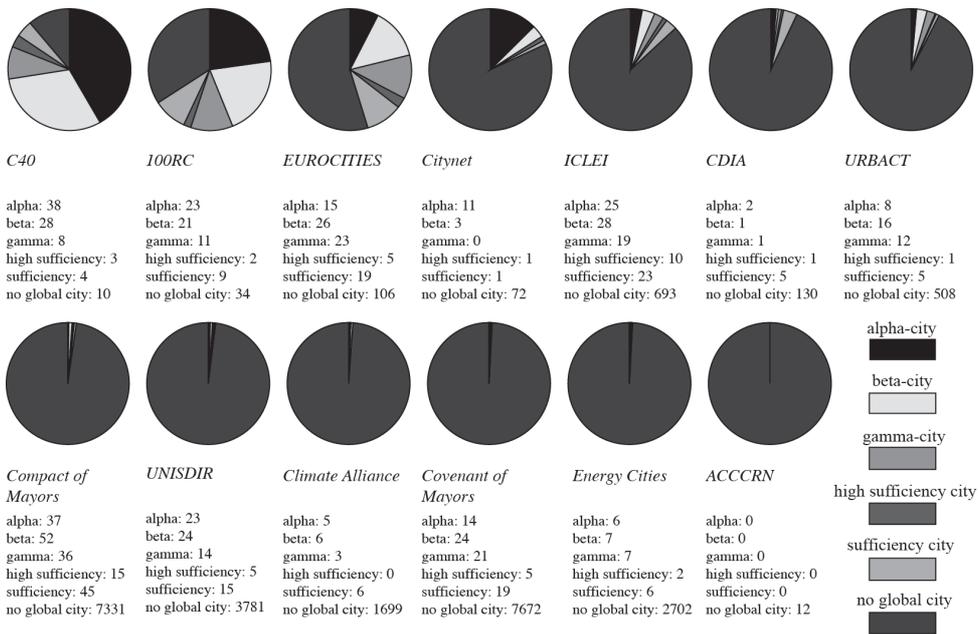


FIGURE 4 – Different levels of world cities among the TMCN-member municipalities. Source: own diagram based on GaWC (2016) and information provided by the examined TMCNs.

The Asian networks are characterised by a low number of members, particularly ACCRN, and by a homogeneous type of member cities (South and South-eastern Asian cities of over a million inhabitants) (Citynet, n.d.; ACCCRN, 2018;).

Within the European TMCNs, a certain level of institutional homogeneity comes from being in the EU. However, they are extremely heterogeneous in terms of its member's size and, consequently, their institutional and technical capacities. CoM, for example, has twenty-seven of the twenty-eight European capitals in its network. However, the vast majority of the more than 7,000 signatories are small-sized municipalities. EUROCITIES, by contrast, has made a minimum

population of 250,000 a membership requirement (EUROCITIES, 2017). The result is a higher degree of similarity among members.

DISCUSSION

As made evident by the previous section, TMCNs are experiencing a pattern of widening differentiation. Against this trend, the existing typology appears to be no more particularly effective in making sense of this increased complexity. In this section, the key findings emerging from the analysis of how different TMCNs perform against the set of criteria that we presented above are linked to each and discussed. Additionally, suggestions are made to open new research pathways leading to more heuristic typologies.

i) Going beyond the distinction into high-profile and in-depth-networks

One first critical outcome of the analysis is around the need to extend the scope of TMCN typologies. We need to go beyond the division of TMCNs in high-profile networks that ‘often fail to implement substantial policies’ on one hand and in-depth networks that ‘are defined by intense cooperation,’ on the other (see Giest and Howlett, 2013: 350). Rather than distinguishing between high-profile and in-depth networks, the results of this analysis suggest a distribution into exclusive elite networks and inclusive mass networks.

The term in-depth suggests that the local climate actions of member municipalities of those TMCNs are more profound than those of the members of high-profile networks. However, there is no proof that the previously defined in-depth networks have a higher impact than high-profile networks, and their networks’ capacities do not indicate this. Looking at the organisational structure of both types of TMCNs and what they offer to its members suggests the contrary. High-profile networks, such as C40 or 100RC, are characterised by: i) a high number of staff (in total and in particular in relation to the number of members); ii) several regional offices; iii) financially strong sponsors; and iv) the provision of significant financial assistance to its members (e.g. funding a full time position to develop the city’s resilience strategies at 100RC). This contrasts heavily with the situation in in-depth networks, such as CoM, Energy Cities, and the Climate Alliance (e.g. far fewer staff, many more members). This is not enough to infer a stronger level of effectiveness on behalf of the first but is enough to put in discussion that binary understanding.

On the basis of these findings, we suggest distinguishing between exclusive elite networks and inclusive mass networks (see Table 11). Exclusive elite networks

are either characterised by a competitive application and selection process with a limited number of members permitted to join the TMCN (100RC, ACCRN, C40) or by having a minimum population as a membership condition (EUROCITIES, C40). By contrast, other than belonging to a certain world region in some cases (Energy Cities, the Climate Alliance, CoM), inclusive mass networks are open to all kinds of municipalities and there are no specific or strict selection criteria. Consequently, they have a much higher number of more heterogeneous members compared to exclusive networks. Inclusive networks tend to be associated with the strong influence of supra-national organisations - the clearest case is represented by EU-related networks - that mobilise TMCNs as critical tools for public policy implementation.

TABLE 11 – Exclusive and inclusive TMCNs.

Exclusive elite networks	Inclusive mass networks		Neither
<ul style="list-style-type: none"> • ACCRN • 100RC • C40 • EUROCITIES 	<ul style="list-style-type: none"> • Climate Alliance • Compact • CoM 	<ul style="list-style-type: none"> • Energy Cities • ICLEI • UNISDR • URBACT 	<ul style="list-style-type: none"> • CDIA • Citynet

Source: own table.

ii) Exploring the different partnership cultures of TMCNs and the collaborations among them

One further pattern of differentiation among TMCNs sees on one side more traditional public governance oriented TMCNs and new emerging ones that, in some cases, dedicate a significant role to private partners and advocate for stronger and more private-public partnerships. However, what do those findings tell us about the work of the different networks and its members?

We also need to consider that a municipality acting on climate change often joins more than one TMCN. This is particularly the case for European municipalities. It might be difficult to find a strict correlation between membership of a certain TMCN and local climate action, but that may also not be absolutely necessary. A more promising approach could be to look at existing or potential synergies among the work of the various TMCNs. Indeed, several TMCNs formally collaborate with others. However, the openly accessible sources (e.g. reports and website information) tell us little about the form, and more importantly, the significance of these partnerships.

The key question here is how collaboration among different TMCNs is actually produced and how such collaborations impact municipalities, in particular those that have multiple memberships. Furthermore, it is unclear how to determine the contributing factors for fully effective use of multiple

memberships. Besides, further qualitative work using expert interviews and covering how various TMCNs interact with each other through various projects or funding programmes could help to improve our understanding of these collaborations. This could be done by focussing on the EU where several public governance oriented TMCNs are working on very related topics and in one case (CoM, EUROCITIES, Energy Cities and the Climate Alliance) even manage a twinning programme together to facilitate learning exchanges among local governments (see CoM, n.d.).

Such research could also help to identify what are the formal and the informal “deals” among the several TMCN and their level of relevance in members’ action. Ultimately, we always come back to the key unanswered question on TMCNs: how to better understand and assess their impacts (see Bulkeley, et al. 2003; Bulkeley, 2010; Fünfgeld, 2015; Bernstein and Hoffmann, 2018; Busch et al., 2018) To find answers, a qualitative assessment of the different tools offered by all TMCNs (e.g. webinars, conferences, peer-to-peer exchange programmes) is urgently required.

iii) Assessing governance models and agenda-setting

Khan (2013) pointed out that the rising relevance of TMCNs may pose issues of closed, remote elites being increasingly in charge of (urban) policymaking. An argument also made by (Bulkeley et al. (2003) and Khan (2013) in reference to their supposed lack of democratic legitimation. To assess the actual work and power-dynamics of complex, non-traditional organisations as TMCN is not a simple task and clearly requires qualitative if not ethnographic research. However, this paper has shown that many TMCNs are governed without any collective or executive body legitimised by electoral procedures involving the members (e.g. elected municipal representatives). Moreover, there are different actors that appear to be powerful and influential (e.g. foundations, supranational organisations, or private partners).

Taking the example of 100RC with its few member cities, the Rockefeller Foundation apparently plays a critical role and has a large staff managing the TMCN (most of them based in New York). It needs to be asked if this in fact represents a network of cities or if it is a highly coordinated organisation encompassing network-like configurations among cities. Generally, the concrete role, influence, and interests of the main organisations managing or supporting the TMCNs need to be better understood. In particular, this includes an analysis of the financing of each TMCN and the contribution of the various partner organisations to it. This applies as much to philanthropic funding (e.g. Rockefeller Foundation for 100RC and ACCRN, and Bloomberg Philanthropies for C40) as to public governance centred funding (e.g. EC for CoM, Energy Cities, EUROCITIES and the World Bank for CDIA). Moreover, the role and significance of the various further organisations partnering with TMCNs (e.g. private enterprises and NGOs) need to be studied in more detail.

iv) Defining geographies of engagement and membership

Just as relevant as who sets the agenda is the question of who is excluded. It should be noted that some types of partners are (numerically) well-represented (e.g. private enterprises and supranational organisations) while others are not. For instance, representatives of civil society are relatively rare. The literature on TMCNs does not tell us much about their role in TMCNs. However, some TMCNs state that they collaborate with NGOs representing the civil society. Moreover, there is evidence that, in the context of members' commitments – e.g. the making of strategies – members frequently recur to stakeholder-engagement practices for which specific TMCNs may have specific guidelines. Learning more about those partnerships – e.g. their operational relevance - and about these broader stakeholder engagement cultures - would help to broaden our knowledge of TMCNs and how they function.

There are two key facts to keep in mind when focusing on municipalities and further elaborating on the question of who is excluded. Firstly, there is a small minority of municipalities in the world that have joined a climate network, and those that joined are overwhelmingly found in Europe and, to a lesser extent, in North America (see Bansard et al., 2017). Secondly, there are many silent or inactive TMCN-members (see Fenton, 2015; Fünfgeld, 2015;), while certain global frontrunners often set the tone (see McFarlane, 2010; Robinson, 2011). Indeed, what this paper has shown is that there are exclusive networks with a small number of selected members. Consequently, assuming that TMCNs lead to or increase local climate action, climate networks need to grow. More specifically, more local governments from those world regions that are currently underrepresented, in particular Africa and some parts of Asia, need to join TMCNs.

CONCLUSION

The paper has discussed TMCNs by means of a literature review and the analysis of sources provided by the studied organisations. While TMCNs include a growing number of local governments worldwide and are widely considered of high potential relevance for future climate governance, they are not yet been well researched and not well understood, either as a whole or as individual organisations.

In response to these research gaps, the paper has introduced a wider framework consisting of a new set of dimensions and indicators allowing a more precise characterisation and differentiation of TMCNs. This could broaden the

perspective on TMCNs and eventually lead to a new typological understanding of TMCNs if not to the abandonment of such a broad concept.

The literature to date has provided us with a typology of TMCNs, distinguishing them according to their geographical scope and number of members. The current understanding of TMCNs includes very different organisations under one umbrella definition. Also, due to the emergence of new TMCNs, this typology proved to be ineffective in identifying diverging patterns and trends within the field.

The existing understanding does not distinguish between: (1) exclusive networks open to a limited number of municipalities and inclusive mass networks open to almost all municipalities; (2) organisations promoted and funded by private foundations and (at the European level) organisations that were established to implement EU policies at the local level; (3) TMCNs with a high number of staff members and several private partners and TMCNs with very little staff and few formal partners; (4) TMCNs with rather strict and formalised rules of engagement, at times associated with direct funding, and TMCNs with more limited and less formalised expectations; (5) TMCNs that rely on substantial forms of external funding and TMCNs that rely on membership-based or project-based funding; and (6) TMCNs whose governance is based on the mandate received by certain political institutions, on some form of members participation and on the centrality of funding organisations.

While this paper has analysed and summarised the academic literature and openly accessible material provided by the studied organisations, additional qualitative research is needed to critically check our findings and, more importantly, to deepen our still unsatisfactory and rather perfunctory understanding of TMCNs. The most urgent questions to be addressed by qualitative research (expert interviews, ethnography) could focus on the specific role and significance of the private and public partner organisations (e.g. on the governance) and the usefulness, significance, and future potential of existing formal partnerships among several of the studied TMCNs.

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ARTICLE 2

City-to-city learning within transnational municipal climate networks: definition, significance and challenges from a global perspective

ABSTRACT

Increasingly regarded as climate governors cities are joining forces in transnational municipal climate networks. The presented research focuses on one of the key services of these organisations: providing a platform for city-to-city learning. However, it is still unclear how helpful these learning processes are in practice for local policymakers. Interviews with forty-eight key representatives of networks and local governments revealed that the main perceived added value of learning and knowledge sharing within networks is due to their function as facilitator of personal networking among policymakers. Regarding future research, we suggest distinguishing sharper between mere knowledge sharing and processes of in-depth learning. Moreover, we call for more research focussing on: i) the potential impacts, and the significance of learning on local climate governance, ii) the learning opportunities offered by study visits organised by networks, and iii) the role of frontrunner cities in providing “solutions” (up to which point these are helpful and down-scalable to laggard cities).

Keywords: city-to-city learning, peer learning, policy learning, climate resilience, transnational municipal climate networks.

INTRODUCTION

Cities are increasingly playing a key role in global debates and policies about climate governance (Bulkeley, 2010; Rosenzweig et al., 2010). In the nineties, a few pioneering cities framed the first transnational municipal climate networks (TMCNs henceforth) to share data, experiences, and roadmaps about their climate policies.

TMCNs provide a platform for the dissemination of knowledge (Andonova et al., 2009; Bansard et al., 2017; Nagorny-Koring, 2018) and can stimulate learning processes among local governments (Leutelt, 2010; Lee and van de Meene, 2012). These learning exchanges among cities are increasingly referred to as city-to-city learning (C2CL henceforth), which is defined as a process of mutual learning among cities that face similar challenges with the aim to become more disaster resilient (van Herk et al., 2016a).

The paper aims to critically understand the relationship between TMCNs and local climate governance, unveiling which are the learning processes offered by or leveraged from TMCNs. Therefore, it analyses, i) in which forms C2CL is taking place among local policymakers ii), as how helpful it is perceived by the involved stakeholders with regards to increasing a municipality's problem-solving capacity, and iii) to what extent TMCNs are catering to the local government needs, e.g. by providing tools or programmes to leverage learning processes. These questions have been addressed through forty-eight in-depth interviews with local policymakers and TMCN-representatives across twenty-two countries, providing a global picture.

With respect to previously published research, this paper aims to expand the current research and knowledge gaps on TMCNs, C2C-cooperation and policy learning. By interviewing a larger number of key local policymakers globally, the paper wants to respond to the call for a better examination of how learning through international cooperation functions in practice (Vinke-de Kruijf and Pahl Wostl, 2016) as well as to a shortage of research on “the perceived benefits of and key elements that make C2C-relationships successful” (Tjandradewi and Marcotullio, 2009: 165). Indeed, little is known about “the process of transfer of urban climate policies and sustainability in bilateral cooperation that embeds knowledge gaps and different political contexts” (Shefer, 2019: 61). Besides, what is needed is “gaining a better understanding of the formal and informal processes that create networks between individuals and organizations” (McCann et al., 2016: 6). More generally, we still know little about how local policymakers actually learn (Gilardi and Radaelli, 2012).

After almost two decades of research, there is still a severe lack of evidence on the TMCNs impacts on the ground, for instance on the formulation of local climate policies (Bulkeley, 2010; Fünfgeld, 2015). Gaining a better understanding of TMCN-related C2CL exchanges and outcomes can help to close this gap. Additionally, despite recent efforts to explore this question (see Giest and Howlett, 2013; Lee, 2013; Busch, 2015), it needs to be better understood why municipalities decided to join TMCNs in the first place and what they expected from the membership (Niederhafner, 2013; Gordon, 2016). Previous research has pointed to the desire of getting connected to other local governments as key reasons for the engagement in TMCN-activities (see Giest and Howlett, 2013; Lee, 2013; Busch, 2015). Furthermore, there is still a shortage of interviews with key actors from global cities involved in TMCNs to better understand their perceptions and experiences about networking and learning (Bulkeley et al., 2012). This is especially the case for towns or cities outside of North America and Europe, where the lack of research evidence is particularly striking (Bulkeley, 2010; Rosenzweig et al., 2010). Moreover, “the dominance of single case studies has limited the scope for making broader generalizations in the field of transnational environmental governance research” (Bulkeley and Jordan, 2012: 560).

Content-wise, the paper is divided into a theoretical and an empirical part. First, TMCNs are defined, introduced and discussed. The following section focuses on the definition, understanding, and use of the C2CL term. The remaining part of the paper is dedicated to the results of the interviews and the discussion of them.

EXPLORING TRANSNATIONAL MUNICIPAL CLIMATE NETWORKS (LITERATURE REVIEW)

Mainly drawing on climate governance and global governance literature this section focuses on, i) the definition of TMCNs, ii) the concepts of transnational and network governance, iii) the services and demands of TMCNs, iv) different kinds of municipalities TMCNs are composed of, and iv) the TMCN’s thematic focus and its evolution over time.

TMCNs are defined as organisations whose “member cities are autonomous and free to join or leave”. They are often “characterised as a form of self-governance” where “decisions taken within the network are directly implemented by its members” (Kern and Bulkeley, 2009: 309 -310). Moreover, within the organisation there is “a certain degree of formalisation and

institutionalisation”, meaning that the joining municipalities “gain access to certain rights (and in most cases obligations) and that the TMCNs themselves gain agency through a formal status and infrastructure (staff, offices, and headquarters)” (Busch, 2015: 6).

Increasingly considered as global climate governors (Gordon, 2016) local governments started facing an emerging tension between contributing to meaningful global climate governance and addressing the specific and practical local challenges (Gordon and Acuto, 2015). Meanwhile, they are prompting local governments to take the lead, ahead of their national governments (Rosenzweig et al., 2010) aspiring to be part of the solutions and to put their names on the global map (Pattberg and Widerberg, 2015). Local governments have globally become more connected to each other, since together having a great deal more influence than they would separately (Andonova et al., 2009; Giest and Howlett, 2013). In the academic literature these new forms of collective action (of local governments) are also referred to as transnational governance (see Risse-Kappen, 1995; Parnreiter, 2011) or network governance (see Bogason and Musso, 2006; Khan, 2013; Sørensen, 2014).

In a nutshell, transnational and network governance challenge the traditional understanding of governance regarding the state as the only regulatory power. While transnational governance explores “the relationships between multiple cross-border interactions and the ‘national’”(Parnreiter, 2011: 417), network governance centres on new forms of looser governance with a more diverse set of actors engaged, such as NGOs or the private sector (Bogason and Musso, 2006; Sørensen, 2014). Indeed, network governance “offers the promise to include new actors in the decision process and favors deliberation between participants” (Khan, 2013: 138).

Although TMCNs do not have the capacities to govern by authority, nor the resources to run their own subsidy programmes, they can: i) provide guidelines (Kern and Alber, 2009), ii) commit its members to shared goals and stimulate actions to reach these goals (Andonova et al., 2009; Kern and Alber, 2009; Busch, 2015), iii) set up benchmarking systems to assess and monitor their progress (Kern and Alber, 2009), iv) strengthen the members capacities and skills for applying to funding or attract investments from the private sector through public-private partnerships and finally (Kern and Alber, 2009) and v) promote a change in attitude and citizens behaviours through the inspiration and motivation of their campaigns (Lidskog and Elander, 2010). Apart from these opportunities that TMCNs can offer to its members and apart from their seeming formal character - many of the network activities are often undertaken through informal interactions (Bell and Park, 2006). High degrees of informality also bear the “risk that elite groups dominate networks leading instead to a concentration of power and influence” (Khan, 2013: 138).

As described in the previous paragraph, TMCNs are organisations with a certain

degree of formalisation. However, first and foremost and as the name indicates they are networks of municipalities. It is key to take into consideration that they are composed of municipalities of very different kinds, e.g. in terms of size, capacities or financial means (Fünfgeld, 2015; Kern, 2019). In the beginning, many TMCNs could be described as “networks of pioneers for pioneers” (Kern and Bulkeley, 2009: 329). However, nowadays they mostly consist of pioneers or frontrunners, followers and laggards (Kern, 2019). Nevertheless, “there is a risk that activities focus on leading municipalities with high levels of capacity to be involved, while excluding other network members who are unable to engage in activities at the level offered” (Fünfgeld, 2015: 71). In this regard, Fenton and Busch (2016) argue that TMCNs need to find a way to represent typical and more ambitious towns and cities at the same time. There is evidence that this is already the case for several European TMCNs. Indeed, Kern (2019: 125) found that “the success of local climate governance in Europe depends not only on leading cities but also on the dynamics between leaders, followers, and laggards. Upscaling local experiments helps to close the gap between these actors.”

The following final paragraph describes the thematic work focus of TMCNs with regards to climate action and its evolution over time. For most of the time, urban climate governance, within and outside of TMCNs, has been mainly focusing on the mitigation agenda (rather than on adaptation or climate resilience), influencing and aligning local governments’ activities, skills and learning towards mitigation targets (Fünfgeld, 2015). However, recently the overlaps between mitigation and adaptation strategies are increasingly being explored globally (Grafakos et al., 2019) in the light of previous research outlining their imbalance (Bulkeley and Schroeder, 2012). Increasingly, some TMCNs started to pay more attention to adaptation, e.g. the Covenant of Mayors (CoM) or the Compact of Mayors (Compact), while also new TMCNs emerged focusing exclusively on resilience or adaptation, e.g. 100 Resilient Cities (100RC), the Asian Cities Climate Change Resilience Network and Cities Development Initiative for Asia (ACCCRN) or Mayors Adapt. This transition from mitigation (and sustainability) to adaptation (and climate resilience) is consistent with the evolution of the international discourses, and reports (see the climate summit in Paris, 2015), promoting necessary synergies between those concepts and considering them to be equal and necessary components of comprehensive climate change actions (UNFCCC, 2015). Also, the global climate change debate suggests that TMCNs are a global phenomenon. However, looking at the actual distribution of the member municipalities reveals that TMCNs are still rather a North American and European business (Bansard et al., 2017).

UNDERSTANDING CITY-TO-CITY LEARNING (LITERATURE REVIEW)

This section focuses on the concept of C2CL exploring how, i) learning and knowledge sharing are defined, ii) different forms of learning can be distinguished, iii) C2CL is defined and applied in the academic literature, and vi) C2CL is similar and different to more established concepts such as policy diffusion, transfer, and mobility.

Generally speaking, learning describes a process that focuses on acquiring knowledge and knowledge should be understood as information “that is meaningful to knowledgeable agents” (Fleck, 1997: 384). By implication, this also defines what does not qualify as learning and what is consequently not considered learning in this paper. To put it concisely, the mere sharing of information among stakeholders does not automatically qualify as learning (Kemp and Weehuizen, 2005). Indeed, information only becomes knowledge when it is understood and when it can be used or applied by its recipient. This also applies to the sharing of best practices, an increasingly popular form of knowledge dissemination. Particularly, when shared among unequal partners the applicability of best practices is questioned (Stead, 2012; Nagorny-Korig, 2018). Since in this paper, the empirical research exclusively aimed at local policymakers and TMCN-representatives the assumption is made that the studied exchanges are either around the sharing of knowledge or learning but not the sharing of information.

The policy learning literature distinguishes three forms of learning: technical, conceptual, and social learning (Kemp and Weehuizen, 2005). Technical learning is characterised by the search for appropriate policy instruments to achieve previously set goals (Kemp and Weehuizen, 2005; Kulsum and Sánchez-Triana, 2008). Conceptual learning aims to see the bigger picture or to examine an issue from a new perspective (e.g. developing strategies or overall goals) (Kemp and Weehuizen, 2005). This includes debating appropriate strategies and goals or their reformulation (Kulsum and Sánchez-Triana, 2008). Social learning defines learning about values, norms, or responsibilities (Kemp and Weehuizen, 2005) such as “multi-stakeholder views and information for improving both technical and conceptual learning” (Kulsum and Sánchez-Triana, 2008: 161). Given the evident overlaps between conceptual and social learning, a clear distinction is not always possible (Kemp and Weehuizen, 2005).

The logic behind C2CL essentially stems from peer learning and it can be understood as a form of policy learning that particularly focuses on the exchanges among local governments. The first to use the C2CL term were

Seymoar et al. 2009 who examined the learning processes among cities that joined the city PLUS sustainability network. Main results were “that local administrators learn mainly from their peer group” and that “networks emerge as a key strategy for speeding the exploitation of knowledge and learning, both formally and informally, in and between local governments” (Seymoar et al., 2009: 21). In the meantime, the term was substantially shaped by van Herk et al. (2016a) for the United Nations Office for Disaster Risk Reduction (UNISDR) in the context of climate and disaster resilience. They see the objective of C2CL in building...

“greater institutional and human capacity required to accelerate progress towards disaster resilience. A distinction from other capacity building services, such as technical training, is that cities will learn together. The promise for cities is to become learning organisations by engaging in city learning networks” (van Herk et al., 2016a).

Academic definitions of C2CL are emerging, but still quite rare. For Koop and van Leeuwen, 2015: 5651) C2CL aims at “improving the implementation capacities of cities by sharing information”. Lundby and Sjöberg (2013) describe it as a form of learning where ideas, experiences, and support are shared among cities. Fisher (2014: 162) pointed out that C2CL is often performed “within smaller projects that prioritise city-to-city exchange on a certain issue”. In the meantime, the use of the term has expanded to further thematic areas such as smart cities (Campbell, 2012), low carbon urbanism (Thornbush, 2016), building resilience (Mackee and Giggins, 2015), water use (Koop and van Leeuwen, 2015), intelligent transport systems (Kolosz and Grant-Muller, 2016) but also more remote areas such as mega-events in cities (Azzali, 2016) or international security (Engelke, 2013).

As described beforehand, C2CL is a relatively new and not widespread concept. However, the closely related field of city-to-city cooperation has already been studied in other disciplines, such as political science (Shefer, 2019) or urban planning (Tjandradewi and Marcotullio, 2009). Moreover, reflecting on the still rather few features that define C2CL there are some thematic overlaps between more established concepts, namely policy transfer, policy mobilities, and policy diffusion (see Table 1). Dolowitz and Marsh, defined policy transfer as “a process in which knowledge about policies, administrative arrangements, institutions etc. in one time and/or place is used in the development of policies, administrative arrangements and institutions in another time and/or place” (1996: 344). In turn, the literature on policy mobilities criticises the national state-centeredness of the policy transfer approach (McCann, 2011) and emphasises the mobile and changeable character of policies, assuming that “policies rarely travel as complete “packages,” they move in bits and pieces—as selective discourses, inchoate ideas, and synthesised models—and they, therefore, arrive not as replicas but as policies already-in-transformation” (Peck and Theodore, 2010: 170). Conversely, Policy diffusion describes “the process in which an innovation is communicated through certain channels over time

among the members of a social system” (Rogers, 2003: 5). More precisely, it examines how policies developed in one administrative unit (e.g. the local level) are influenced by the policies of other units (e.g. a neighbouring local government) (Gilardo and Wasserfallen, 2017). As one of its four mechanisms learning is considered a key part of policy diffusion (Shipan and Volden, 2008).

TABLE 1 – Different forms of knowledge circulation among local governments.

	C2CL	Policy diffusion	Policy transfer	Policy mobilities
Academic discipline	<ul style="list-style-type: none"> Not established in academia yet. 	<ul style="list-style-type: none"> Political Science. Sociology. 	<ul style="list-style-type: none"> Political Science. International Studies. 	<ul style="list-style-type: none"> Human Geography. Political Science.
Main goal of the approach	<ul style="list-style-type: none"> Knowledge sharing between local governments. Learning and improving together. 	<ul style="list-style-type: none"> Examining how policy choices made in one place are influenced by the policy choices made in another place. Identifying diffusion mechanisms. 	<ul style="list-style-type: none"> Documenting, explaining the movement of policies between countries. Understanding the restricting or facilitating factors for the transfer process and its relation to policy “success” or “failure”. 	<ul style="list-style-type: none"> Theorising how knowledge is mobilised. Understanding how ideas become hegemonic and global.
Main thematic areas	<ul style="list-style-type: none"> (Disaster and climate) resilience. Smart cities. Water use. 	<ul style="list-style-type: none"> Public Policy. 	<ul style="list-style-type: none"> Public Policy Comparative Politics. 	<ul style="list-style-type: none"> Entrepreneurial governance. Urban social movements. Gentrification. Policing. Planning and redevelopment.

Source: Rogers, 2003; Balmer & Padgett, 2004; Shipan & Volden, 2008; McCann, 2011; Baker & Tenemos, 2015; Lovell, 2016; Gilardi & Wasserfallen, 2017.

While learning also plays a role in all three presented approaches, they differ from C2CL in the way they emphasise the policy that is moved from one place to another. As it stands, C2CL focuses on processes of mutual learning and how these can be established and improved, whereas the actual policy that is the subject of the learning exchange, has received little attention. In that respect, C2CL is closer to policy diffusion where learning is not the only key but nevertheless one of the key components. Additionally, the scope of C2CL is more confined since it focuses solely on local governments, more precisely on local policymakers. The reasoning behind is that local governments are exposed to rapidly changing environments, inter alia caused by climate change, and thus need to adapt fast through peer learning. What this paper offers to further develop the concept is the examination TMCNs, a potentially significant facilitator of C2CL.

METHODOLOGY

The results of this paper are based on semi-structured expert interviews that were carried out between April 2016 and July 2017. Interviews were conducted with local policymakers representing municipalities that are members of one or more TMCN (e.g. resilience officers, environmental coordinators, climate managers) and representatives of TMCNs (e.g. programme managers or network directors). The interviews were conducted on-site, via phone, Skype or email. In total, forty-eight interviews were carried out, thirty-six with municipal representatives and twelve with representatives of TMCNs. The surveyed TMCNs include 100RC, ACCCRN, the C40 Leadership Group (C40), Climate Alliance, CoM, Energy Cities, Local Governments for Sustainability (ICLEI), Mayors Adapt, and UNISDR⁸). Interviews were conducted with local governments from all continents and from twenty-two different countries (see Figure 1 and Table 2).

The selection of TMCNs for the survey oriented on the definitions of TMCNs as presented in the literature review. In a nutshell, TMCNs are formal, self-governed organisations with a headquarters and staff and are autonomously joined by municipalities (see Kern and Bulkeley, 2009; Busch, 2015).

For the selection of local governments to be included in the survey, it was key to sufficiently represent the different kinds of municipalities active in TMCNs. As described in the literature review, two main types of members can be distinguished: pioneers (Kern and Bulkeley, 2009; Kern, 2019) or leading municipalities with high levels of capacity (Fünfgeld, 2015) and followers and laggards (Kern, 2019). These different member types could be identified by their role or activity within a TMCN. For instance, in the framework of the CoM Twinning Programme Cascais and Glasgow participated as mentor cities. Moreover, the sample includes five UNISDR role model cities (Bangkok, Buenos Aires, Gothenburg, Kristianstad, San Francisco) and two cities that C40 classifies as innovator cities (Rotterdam, Vancouver). Then again, the sample is also composed of a large number of supposedly more ordinary municipalities that up to now were not specifically noticeable as frontrunners or pioneers but that certainly make up the vast majority of TMCN-members. Moreover, municipalities that were specifically looking for learning opportunities from frontrunners were selected. These are namely, Antwerp, Stirling, and Thessaloniki that participated as learning cities in the CoM Twinning Programme.

While this paper claims to take a global perspective, the geographical

⁸ When mentioning UNISDR as TMCN in the text the authors refer to UNISDR's Making Cities Resilient campaign and not the overall organisation of UNISDR.

distribution of the surveyed municipalities shows that most of them come from Europe, North America and to a lesser extent from Asia (see Figure 1). However, this reflects the contemporary reality in TMCNs since most of its members are located in Europe or North America (Bansard et al., 2017). Moreover, the CoM, Climate Alliance, Energy Cities, and EUROCITIES are exclusively active in Europe, ACCCRN, Citynet are only open to Asian cities and 100RC has its headquarters and a significant number of its members in North America. Then again, there are no TMCN-headquarters or regional TMCNs in Africa, Latin America or Oceania.

The specific persons to be interviewed (representing local governments or TMCNs) were identified through i) desk-research, ii) existing contacts and iii) recommendations of the interviewees (snowball sampling). Some TMCNs also explicitly listed the municipal representatives in charge of the climate action or resilience work and the TMCN-activities on their websites. The core questions asked to the local representatives were around, i) the reasons to participate in TMCNs, ii) their perceptions about C2CL (in which forms is it taking place? How important and helpful is it and how is it supported by TMCNs? And finally, iii) which were the main barriers but also imaginable improvements for networked C2CL. The interviews with TMCN-representatives were mostly dealing with the significance of C2CL within their organisation.

The interview results are grouped according to four major themes deriving from the key research gaps on TMCNs, C2C-cooperation and policy learning:

A: Reasons for joining TMCNs

B: Kinds of exchanged and requested knowledge

C: TMCNs as facilitators of C2CL and different forms of C2C collaborations

D: Obstacles for C2CL in TMCNs and opportunities for improvements.

A: Reasons for joining TMCNs and the perceived added value of a membership derives from Niederhafner (2013) and Gordon (2016) who pointed out that little is known about why municipalities joined TMCNs and what they expected from its membership in the first place.

B: Kinds of exchanged and requested knowledge was inspired by Vinke-de Kruijf and Pahl Wostl (2016) who called for a better examination of how learning through international cooperation functions in practice and Gilardi and Radaelli (2012) who remarked that there is limited knowledge about how local policymakers actually learn.

C: TMCNs as facilitators of C2CL and different forms of C2C collaborations responds to the call of McCann et al. (2016: 6) who found that “the formal and informal processes that create networks between individuals and organisations” need further exploration.

Finally, *D: Obstacles for C2CL in TMCNs and opportunities for improvements* refers to Shefer’s (2019: 61) call for a better examination of “the process of transfer of urban climate policies and sustainability in bilateral cooperation” and more generally to Bulkeley (2010) and Fünfgeld (2015) who found that there is little research evidence on the TMCNs effectiveness and impacts on the ground.

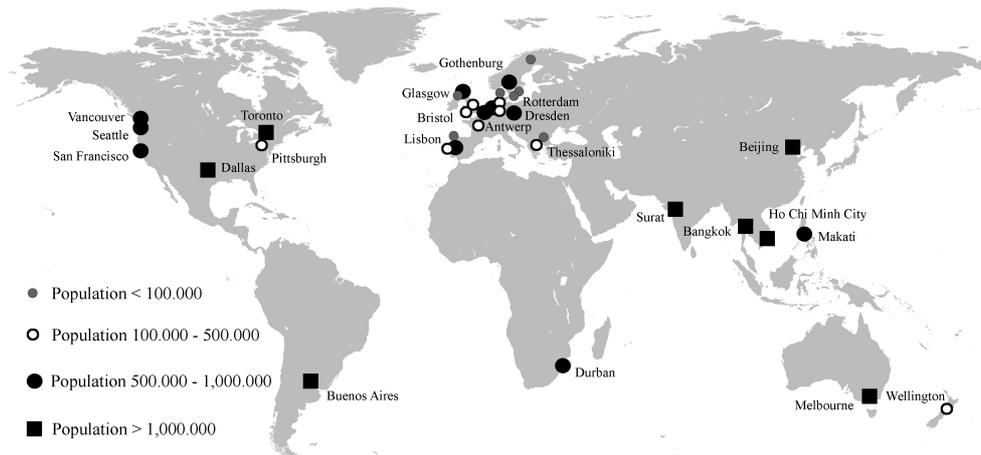


FIGURE 1 – Global distribution of the interviewed local policymakers. Source: own diagram.

TABLE 2 – Interviewed local policymakers.

Interviews with representatives of municipalities that joined TMCNs			
Municipality	Country	TMCN-memberships	Position
Antwerp	Belgium	Compact, CoM, ICLEI, EUROCITIES	Programme Leader Sustainable City
Buenos Aires	Argentina	Compact, 100RC, C40, ICLEI, UNISDR	Climate Change Department Manager
Bangkok	Thailand	100RC, C40, Citynet, ICLEI, UNISDR	Chief Resilience Officer
Beijing	China	C40	Senior Engineer of Beijing Institute of Water
Bristol	UK	100RC, Compact, CoM, ICLEI, EUROCITIES, Energy Cities	Chief Resilience Officer
Cascais	Portugal	Climate Alliance, Compact, CoM, ICLEI, UNISDR	Climate Change Project Manager
Dallas	USA	100RC, ICLEI	Chief Resilience Officer
Dresden	Germany	Climate Alliance, Compact, CoM, EUROCITIES, ICLEI	Head of City Ecology Department of the Office for Environment
Durban	South Africa	100RC, C40, Compact, ICLEI	Chief Resilience Officer
Glasgow	UK	100RC, CoM, Compact, EUROCITIES, ICLEI	Chief Resilience Officer
Gothenburg	Sweden	CoM, EUROCITIES, ICLEI, UNISDR	Landscape Architect, Strategic Department City Planning Authority
Jokkmokk	Sweden	Compact, CoM, UNISDR	Energy Expert and Environmental Strategist
Kristianstad	Sweden	Compact, CoM, UNISDR	Fire engineer at the Rescue Service
Leicester	UK	Compact, CoM, Energy Cities	Senior Environmental Consultant (Climate Change)
Lisbon	Portugal	100RC, C40, Compact, CoM, EUROCITIES, Energy Cities, ICLEI, UNISDR	Municipal Director of Waste Management

Nijmegen	The Netherlands	Compact, CoM, ICLEI	Senior Advisor Water and Sustainability
Ho Chi Minh City	Vietnam	C40, Citynet	Assistant C40 Leader
Makati	Philippines	Compact, Citynet, ICLEI, UNISDR	(Former) Senior Adviser, Office of the Mayor
Melbourne	Australia	Compact, 100RC, C40, ICLEI	Resilient Melbourne Operations Coordinator
Orléans	France	Compact	Risk manager
Pittsburgh	USA	100RC, Compact, ICLEI	Chief Resilience Officer
Rotterdam	The Netherlands	100RC, C40, Compact, CoM, EUROCITIES, ICLEI	Manager of the Resilience Team
Rotterdam	The Netherlands	100RC, C40, Compact, CoM, EUROCITIES, ICLEI	Senior Advisor for Climate Change Adaptation, Circular Economy and International Cooperation
San Francisco	USA	100RC, C40, Compact, UNISDR	(Former) Chief Resilience Officer
Santiago de Compostela	Spain	Compact, CoM	Senior Policy Advisor
Seattle	USA	100RC, C40, Compact	Manager, Climate Resiliency Group
Smolyan	Bulgaria	Compact, CoM	Projects, Youth and International Activities
Stirling	UK	Compact, CoM	Senior Sustainable Development Officer
Surat	India	100RC, ACCCRN, Compact, ICLEI	Chief Resilience Officer
Thessaloniki	Greece	100RC, Compact, CoM, EUROCITIES	Chief Resilience Officer
Toronto	Canada	C40, Compact, ICLEI	Senior Environmental Engineer
Vancouver	Canada	C40, Compact, ICLEI, UNISDR	Senior Sustainability Specialist
Växjö	Sweden	CoM, Compact, Energy Cities, ICLEI	Environmental Coordinator
Vejle	Denmark	100RC,	Chief Resilience Officer
Wellington	New Zealand	100RC, Compact, UNISDR	Chief Resilience Officer
Zwolle	The Netherlands	/	Senior Policy advisor

Source: own diagram.

TABLE 3 – Interviewed TMCN-representatives.

Interviews with representatives of TMCNs		
Affiliation	Country	Position
100 Resilient Cities	USA	Senior Manager, Monitoring and Evaluation
ACCCRN	Thailand	(Former) ACCCRN Network Director
ACCCRN	Indonesia	ACCCRN Network Director
C40	USA	Head of the Adaptation and Water Initiative
C40	UK	Regions Project Officer
Climate Alliance	Germany	Executive Director
Energy Cities/CoM	Belgium	Head of CoM Office
Energy Cities	Belgium	Policy and Communication Officer
ICLEI	Germany	Resilient Cities Programme Manager
ICLEI	Germany	Head of ICLEI Global Capacity Center
Mayors Adapt/Ecofys	UK	Senior Consultant Ecofys, Project Manager Mayors Adapt
UNISDR	Switzerland	(Former) Head of Advocacy

Source: own diagram.

FINDINGS

The main interview results are presented and explained in the following four sub-sections. As explained in the methodology section, these sub-sections represent four major themes deriving from the key research gaps on TMCNs, C2C-cooperation and policy learning.

A: Reasons for joining TMCNs and the perceived added value of a membership

The most common motivations to join a TMCN were around the mission of putting the local government's work into a broader (international) context (5 mentions), to get (easier) access to funding (4 mentions) and more recognition at the national and international level (3 mentions).

For local governments aiming to position themselves as frontrunners in local climate action, joining a related network was often seen as a strategic move. In this context, a policymaker from the Swedish town Jokkmokk emphasised that one reason to join the CoM was to present the town as a renewable energy community model town for which a TMCN can serve as a platform.

For cities with a certain importance, e.g. the (regional) capitals or the regions or countries biggest city, a TMCN-membership is often regarded as a necessary formality: these cities often feel 'obliged' to lead and 'give a good example' to others, as an interviewee from Antwerp described.

Additionally being part of a TMCN could help to raise the profile of the local policymaker's work within the local administration (5 mentions). An interviewee from Cascais (Greater Lisbon) stressed that putting the own work in a broader context through the participation in a transnational organisation has helped to increase the understanding and recognition of the issue of climate change in other relevant municipal departments. Thus, departments that had access to funding, e.g. civil protection for flooding hazard actions, could be convinced to include climate change response into the justification of their work proposals.

Most interviewees emphasised the positive role of TMCNs in creating a platform for knowledge sharing and learning (22 mentions). Indeed, getting in touch easily with colleagues from abroad allowed regarding similar issues from a perspective different from the own national one. In this context, a local policymaker from Vancouver explained that there is a learning opportunity, meaning that there is the chance to see what other cities are doing, what has worked well and why.

It has been stated that the sharing of best practices gives credibility about innovative approaches (13 mentions), especially when they have been implemented in a municipality with a 'big' name (5 mentions). This can be helpful when trying to convince decision-makers of the own local government and leads to another experienced asset of a TMCN-membership: getting in touch with and learning from frontrunners. In this context, a policymaker from Antwerp described that the city was in a twinning project with Copenhagen facilitated by the CoM. Through the twinning, Antwerp as a learning city could learn about how to deal with cloudbursts from the mentor Copenhagen. Some of the presented concrete measures are now serving as input for the municipal water plan (e.g. the Copenhagen runoff model). Similar comments came from the Chief Resilience Officer (CRO) of Vejle (Denmark) who described the exchange with the frontrunner city Rotterdam as follows:

“We are personally a lot inspired by Rotterdam. We go to Rotterdam very often and learn from them and collaborate with Dutch designers to learn how they have organised it. How they were able to integrate more functions regarding water management. So there is a lot of exchange, both on everyday idea level as well as strategic exchange.”

A policymaker from Toronto also stressed the TMCN's role as an encouraging connection that helped to maintain the momentum in an unsympathetic political environment: “having support in dark days is critical.” This referred to the period when the former Toronto mayor terminated almost all municipal climate change efforts. Instead, the city employee received support and encouragement from UNISDR and the Rockefeller Foundation that allowed continuing the work on local climate action.

The interviewed CROs representing 100RC-members unanimously highlighted that knowledge sharing is a priority of 100RC. Having one key person in charge (the CRO) enabled quite effective communication. One CRO explained, “if I want to ask how New York reacted to Sandy, I just pick up the phone and contact the right person directly.” The less effective alternative would be going from mayor to mayor which means contacting many different persons without a success guarantee. The CRO of San Francisco positively remarked that one gets “real-time, unfiltered information” and that “it's not about showing off”. Furthermore, the CRO of Durban underlined that TMCNs provide “space for these alternative debates”, especially for cities that have reached a certain level in their working area.

B: Kinds of exchanged and requested knowledge

The interviews revealed that the knowledge transferred within TMCNs was mainly on advice, and updates on how to use shared methodologies or technologies (18 mentions), projects or initiatives (9 mentions), or to receive technical assistance (9 mentions). It could also be more implicit and informal, but hence not less important knowledge such as advice on how to prepare applications for a funding programme. Here, particularly municipalities from

the same country, who also understood the national and cultural context, were pointed out as valuable contacts.

A popular form of circulating knowledge taking place in all examined TMCNs is through the sharing of best practices. An interviewee representing 100RC stated that its members were interested in practical tools that can be used and implemented right away. One CRO highlighted that it appeared reasonable to look first for local governments that already had good examples since “you don’t want to reinvent the wheel.”

Regarding the sort of knowledge that is being requested and shared among local governments, some TMCN-representatives stated that it often tended to be quite technical and rather specific. Referring to his experience with Asian second-tier cities the former network director of ACCCRN reported that the knowledge to be shared needed to be context-based, focused, solution-based and rather short. One TMCN-representative remarked that the knowledge generated by TMCNs or through C2C-exchanges was not always taken on holistically and did not always take into account academic evidence. Quite the contrary, often it was only used to collect knowledge that supported municipal decisions that were already made beforehand.

C: TMCNs as facilitators of C2CL and different forms of C2C collaborations

Among the tools provided by TMCNs that can support C2CL the most mentioned ones were webinars (11 mentions), workshops (10 mentions), conferences (8 mentions), seminars (3 mentions), and the TMCN’s newsletters (2).

A representative of ICLEI described that there were occasionally C2C-workshops that were often parallel or side events along with conferences. They served as a platform, where local governments could have more in-person communication with other interested peers. The helpfulness of events that were designed to allow in-person communication was confirmed by several of the interviewed local policymakers (10 mentions).

Webinars were described as a valuable tool, provided that there was a clear learning objective and enough time for follow up questions.

It was mentioned that conferences could be an effective instrument to meet many peers at once. In that respect, it was described that C2CL could be achieved most easily by a mix of tools, meaning that stakeholders could meet first in big conferences to get updated on the global reflection on a topic. In the next step, local governments that face similar problems and share the same background could collaborate more in-depth. What could follow is a process of learning, from a variety of methods and dynamics, which a policymaker from Seattle defined as follow:

“I firmly believe that my organisation’s involvement in learning networks has increased our institutional capacity and knowledge, certainly my capacity and knowledge. Developing concepts like preparing for multiple plausible futures, decision making under uncertainty, co-production of knowledge, knowledge to action networks, actionable science, are all fundamental tenets in the work I do that came to the forefront as a result of our participation in these networks. I’m not suggesting these networks necessarily created all of these concepts, but I feel that our exposure to them was accelerated because of our participation in these networks.”

C2CL among local governments facing common problems was often initiated through the creation of a collaboration agreement facilitated by a TMCN. Indeed, among the interviewed local governments this applied to Makati that was connected to Kathmandu and Quito by UNISDR in the framework of the disaster recovery focussed City-to-City Sharing Initiative. Besides, Ho Chi Minh City was brought together with Rotterdam by C40 for a cooperation project on carbon disclosure. The Coordinator of UNISDR’s Resilient Cities Campaign described that they connected Swedish local governments to New York to learn from post-Hurricane Sandy experiences. Moreover, as explained beforehand, several surveyed municipalities participated in the CoM Twinning Programme where they were matched with peer municipalities facing similar adaptation challenges. Cascais and Glasgow participated as mentors, while Antwerp, Stirling, and Thessaloniki joined the twinnings as learners.

In the case of Dresden, as an interviewee explained, the initiative to join a TMCN came from ICLEI. Dresden’s work on climate adaptation and flood management attracted the attention of ICLEI and led to collaboration among several local governments in the framework of the EU Cities Adapt programme that is supported by ICLEI. Dresden and Birmingham acted as peer cities transferring knowledge to five so-called training cities within Europe.

For some local governments, longstanding partners such as twin, sister or peer municipalities played a key role in their learning processes. This was particularly important when talking about adopting innovative approaches that require a lot of efforts to be implemented. Rather than reaching out to many TMCN-members, some local governments preferred to focus the knowledge exchange on one reliable peer or collaborative city embedded in the same national context. An example is the case of the Dutch municipalities Zwolle and Dordrecht, both considered frontrunners in climate adaptation in the Netherlands.

However, the interviews highlighted that by connecting local governments TMCNs helped to create valuable personal contacts (19 mentions). A representative of C40 mentioned that there were also connections established among members where the TMCN only did the initial call and then the local governments started to collaborate. The CRO of Glasgow pointed out that the CoM Twinning Programme has led to several direct relationships between

small groups and individuals that turned out to be helpful for the city. Later, the collaboration even expanded to further non climate action-related areas, such as trade, civic links, and cultural issues.

Being a TMCN-member is a formal activity, whereas the contacts that result from a membership can also evolve into more informal and personal partnerships. In this regard, many interviewees highlighted the major importance of trust among stakeholders and the role of face-to-face interactions as the determining factor for the establishment of these (10 mentions).

The Coordinator of UNISDRs Resilient Cities Campaign underlined that peer learning among local policymakers is more effective than unidirectional learning from experts: a colleague who understands the realities in the everyday working life is usually more helpful than an external expert. Generally, the key role of face-to-face meetings for learning was highlighted by many representatives of TMCNs and municipalities.

D: Obstacles for C2CL in TMCNs and opportunities for improvement

The most common obstacles that hinder C2CL are limited resources, mainly time (9 mentions), funding and financial means for networking and attending events (5 mentions), and technical expertise (3 mentions).

The former network director of ACCCRN pointed out that there was a huge challenge represented by the low capacities of many second-tier cities to replicate the best practices exposed by global cities. Also, language barriers could be a limiting obstacle. Not all stakeholders spoke English and technical documents were often only available in the national languages (and translating them constituted a significant investment of time).

Another threat for TMCNs, especially for those that demand the payment of a membership fee, can be posed by administrative or political changes that might lead to different (political) priorities.

The lack of financial resources to dedicate to TMCN-activities and to implement climate policies was identified as a major obstacle. Consequently, some local policymakers called for stronger private sector involvement (5 mentions). Two C40 members criticised that C40 only dedicated minimal attention to this gap, even though it was widely recognised as a weakness. Besides, it was stated that bringing in the private sector proved to be more difficult in the field of climate adaptation or resilience compared to mitigation. The former director of ACCCRN highlighted that the private sector often did not see disaster risk reduction and resilience preparation as their field of duty since the government was supposed to handle this.

Then again, a fair number of municipal representatives pointed out that there was already quite a strong engagement of the private sector, as in the case of

100RC (8 out of the 11 interviewed CROs). One CRO indeed confirmed that it was also among the goals of 100RC to build a market place, not just for public administrations to share knowledge but also for businesses to develop solutions. Another CRO pointed out that actually bringing in private and growing markets was so deeply a part of 100RC that it has become a difficult relationship.

Regarding imaginable opportunities to enhance the TMCN's functions and dynamics what some suggested was to provide more peer-exchange or networking opportunities between members (7 mentions) and to create an easily accessible database with meaningful knowledge of the members (4 mentions) or to provide metrics for measuring the benefits of the services provided by TMCNs (2 mentions). This was a point that was already picked up by some TMCNs. Indeed, the Coordinator for the Resilient Cities Campaign described that UNISDR tried to set up some standardised indicators that measure the disaster-proneness of towns and cities. Also, representatives from 100RC and C40 stated that they were grappling with the question of how to measure the resilience work of its members. Here, the consensus was that it was necessary to develop tools that are not only based on a good concept but that can be applied right away by local governments.

Some local policymakers emphasised they would appreciate if there was a collaboration or at least coordination across different TMCNs to use the resources at disposal in a more integrated manner (3 mentions). From the TMCN-side, it was stated that there was already collaboration among different networks: 100RC, for example, could build upon the work of the earlier established TMCN C40 and so did ACCCRN with ICLEI, that was described as a helpful partner. In that regard, the Head of the CoM, who is also affiliated with Energy Cities, mentioned that the streamlining of existing TMCNs and, at times, also the merge of some could help local governments to keep committed to the network goals.

Another improvement suggestion identified was creating opportunities to connect cities to non-TMCN-members. The CRO of Wellington remarked that this could help to "spread the resilience gospel" and make (non-members and members) realise that the challenges they are facing are not as unique as they might think.

It was also stressed that having more opportunities to interact with experts could be helpful (5 mentions). A further key aspect mentioned was the stronger inclusion of regional governments within the TMCNs (2 mentions). Such vertical networking could also aim at establishing stronger linkages of the TMCN-activities to the Conference of the Parties (COP) discussions and outcomes (2 mentions).

Furthermore, some local policymakers asked for more assistance on how to correctly apply for funding bids (2 mentions). As suggested by one interviewee,

this could be achieved through the creation of standardised training courses on adaptation that helps to better frame the project proposals.

DISCUSSION

By interviewing representatives of local governments and TMCNs globally, this paper analyses how C2CL is conceived within TMCNs, perceived by the involved stakeholders and how far it can help to cater the needs of local governments engaging in climate action. The common message from the interviewees was that local governments want to learn from and share knowledge with peers from local governments facing similar challenges in order to improve their own climate change adaptation problem-solving capacities. The few existing definitions of C2CL that highlight the importance of exchanging knowledge (see Lundby and Sjöberg, 2013; Fisher, 2014; Koop and van Leeuwen, 2015) and the vision of local governments learning and improving together (van Herk et al., 2016a) are generally in compliance with the interview results. A critical look at the results of this study and the presented academic literature lead to further key insights and questions to be addressed by future research that are herewith discussed:

i) Learning vs. sharing of knowledge

At first glance, all three forms of learning distinguished by Kemp and Weehuizen (2005) - conceptual, social, and technical learning are widespread among TMCN-members. The interviews revealed that having the opportunity to see things in a new light (conceptual learning) and discovering alternative appropriate ways of interacting (social learning) were highlighted as main benefits of C2CL within TMCNs. Learning about specific instruments (technical learning) is also common but then again was rarely described as the most important benefit of C2C-cooperations. However, looking critically at the studied exchanges, many of them do not qualify as learning but are rather about the sharing of knowledge. Indeed, learning describes a process of acquiring knowledge (see Fleck, 1997) while the mere sharing of knowledge, for instance, the sharing of experiences through best practices as actively done within TMCNs, can also just be a singular act. In theory, the sharing of best practices can initiate a learning process, which manifests itself in the application of a best practice elsewhere. Then again, the interviews showed that best practices rather raise awareness or give inspiration but hardly lead to C2CL. This confirms the arguments of Stead (2012) and Nagorny-Korig (2018) who are sceptical about the general applicability potential of best practices.

Moreover, the interviews demonstrated that the boundaries between learning and the sharing of knowledge could also be fluid and drawing clear dividing lines was not always possible. This applies for instance to webinars, workshops or conferences that are - just as best practices - popular forms of knowledge sharing and potential facilitating tools for C2CL. In other cases, the distinction was clearer: the study and study visits organised by some TMCNs could initiate collective learning processes within a learning network of equals.

To conclude, it is to be expected that in everyday speech often little or no differentiation is made between learning and the sharing of knowledge. This also - or maybe even particularly - applies to the interviewed stakeholders (representatives of local governments and TMCNs). Indeed, it can be assumed that learning sounds more in-depth or profound and thus more “saleable” than knowledge sharing.

ii) Transnational networks as creators of informal personal relations

The interview results confirm previous findings that identified the desire of getting connected to other local governments as a key reason for the participation in TMCNs (see Giest and Howlett, 2013; Lee, 2013; Busch, 2015). More specifically, the interviews revealed the critical role of personal relations based on mutual trust for often quite informal knowledge or learning exchanges. It was highlighted that many of these contacts were facilitated by TMCNs. By implication, this also means that a lot of the exchanges taking places are concealed from the public.

Furthermore, it needs to be stressed that C2CL never means local government A is learning from local government B, but person A, from local government A, is learning from and ideally with person B, from local government B. Ultimately, the social and personal skills of the involved stakeholders will determine the success and evolution of C2CL. Essentially, being a TMCN-member is not per se beneficial for a local government. It is rather about who is chosen to represent a local government.

Taken together, this raises a critical issue: initially, these informal contacts represent undisputed advantages for the involved local policymakers. Otherwise, it should be noted that these are rather reinforcing the beforehand-described concerns about TMCNs supporting a form of elite governance that can be outside of democratic control (see Bell and Park, 2006; Khan, 2013).

iii) Succeeding in financing the actions to enhance climate resilience and how transnational municipal networks can contribute to it

As highlighted in the findings section, for many local governments, the question of how to finance the TMCN-activities and even more importantly, the climate actions remain unanswered.

At first glance, a plausible way to deal with the often-stated lack of capacities and resources could be the establishment of public-private agreements. This would be in line with the understanding of network and transnational governance that emphasise the engagement of independent non-state actors (see Bogason and Musso, 2006; Khan, 2013; Sørensen, 2014).

These partnerships could contribute to financing the local government's climate action efforts. With external funds at disposal, it might also be easier for the local policymakers to convince their municipal council of their work. However, it was highlighted that bringing in the private sector was more difficult in the field of climate resilience and adaptation than in mitigation, since many private enterprises regarded adaptation as a responsibility of the state, and not of them.

More importantly, the described concerns about the informal and democratically ambiguous character of some activities taking place in TMCNs are supposed to be rather reinforced by the inclusion of private enterprises. Notwithstanding the above, it first needs to be better understood how successful the existing private-public collaborations facilitated by TMCNs have worked in practice. Therefore, a closer look should be taken at the approaches of those TMCNs that already try to bring in private partners (e.g. 100RC or UNISDR).

iv) The limitations of learning from frontrunners

The interviews showed that many local governments tend to focus their attention on pioneering or frontrunner towns or cities, aiming at learning from those models. However, this is often done uncritically, without having appropriate capacities and resources to follow their examples. Indeed, frontrunners often also joined TMCNs for gaining recognition and raising their profiles.

Unfortunately, no matter how progressive and successful these few frontrunners are, in comparison to the followers or laggards they only represent a minority and eventually all towns and cities need to urgently adapt to climate change. As highlighted by Fenton and Busch (2016), TMCNs need to find ways to represent all kinds of municipalities at the same time.

The critical question is how frontrunners can truly help other local governments in following their example. Can the successful measures of a global frontrunner be downscaled to a laggard or follower with limited options and resources for action? Therefore, the very aim of being a frontrunner within a TMCN could be questioned by exploring the critical divide between 'teaching' and 'learning' cities. An examination of the CoM Twinning Programme or UNISDR's City-to-City Sharing Initiative could provide more insights on that.

However, even if the 'learning-through-teaching' model turns out to be successful, this form of learning is not representing a balanced two-way traffic

collaboration. To a certain extent, it also runs counter with the existing definitions of C2CL, emphasizing the importance of mutual learning.

CONCLUSION

Only since the last few years, C2CL is slowly but explicitly being named, studied and documented. This paper further contributes to define, explore and challenge C2CL as it happens through different TMCNs. It was demonstrated that not everything that has learning on the cover is actually about learning. Indeed, we suggest distinguishing between the mere sharing of knowledge and in-depth processes of learning. Therefore, we raise a call for more research on existing in-depth learning opportunities such as study visits between local governments that are organised by TMCNs.

The results reveal it is generally recognised that local governments engage in TMCNs and networked learning. They are often looking for practical exchanges on progress, but also aim to connect with local governments that face similar challenges or that are considered frontrunners. However, what this study brought to light within a global perspective is that the truly perceived added value of TMCNs resulted to be within their function as a facilitator of personal contacts among local policymakers.

Beyond the concerns of supporting the rise of an urban elite climate governance or providing a platform for individual practitioner's career advances, C2CL needs to broaden the effectiveness of its mechanisms and practices for policy implementation. One of the resulting challenges would be framing *ad hoc* mechanisms focussing on how solutions provided by frontrunners could be downscaled to laggards. In line with this, further research is needed on how public-private partnerships should be better framed for leveraging policy actions and what role C2CL or C2C-cooperation can play in it.

While this paper has offered a global and general perspective of C2CL within TMCNs, it is crucial to gain a better understanding of the actual impacts of those learning processes on local climate governance. Indeed, it remains widely unclear if and to what extent C2CL and TMCNs in general can lead to local policy change on the ground.

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ARTICLE 3

How do local policymakers learn in climate change adaptation? Examining study visits as an instrument of policy learning in the European Union

ABSTRACT

In recent years, study visits have experienced a revival. However, they are also an under-researched phenomenon, particularly in the field of climate change adaptation. Drawing on expert interviews with key municipal stakeholders this paper investigates study visits that are organised and managed by the European municipal climate networks EUROCITIES and the Covenant of Mayors. The paper demonstrates that study visits: i) are increasingly supported and organised by the use of information and communication technologies, ii) are particularly stimulating conceptual learning of visiting learning municipalities from mentoring hosting municipalities, iii) increase the credibility of policies within a local administration, iv) are used as strategic instruments by mentor cities, v), are more successful if the peer-municipalities are not too different from each other (size, institutional context), and vi) under certain conditions, lead to policy adoption in a learning municipality. Future research needs to critically discuss the mass suitability of learning from frontrunner municipalities. Furthermore, a call is raised for more research and practical action on how to initiate and improve learning exchanges beyond the strict division between mentors and learners. Instead, the focus needs to be on mutual learning exchanges between municipalities that learn and improve together.

Keywords: Climate change adaptation, Covenant of Mayors, EUROCITIES, knowledge brokers, study visits, policy learning, policy mobilities

INTRODUCTION

Climate change is putting increasing pressure on towns and cities, which is manifested in a higher incidence of flooding, heat waves, water scarcity, and so on. Responding to these challenges is placing new and often complex demands on local decision-makers. Consequently, local governments need to accelerate the learning process on how to respond to these challenges, for instance by looking for solutions that have worked elsewhere and by learning from those experiences. This is increasingly done through study visits where representatives of one or more municipalities learn from a host municipality that faces similar adaptation challenges.

Referring to the in-person exchanges of local policymakers as examined in this paper, the most commonly used terms in the policy mobilities literature are study visits (Sheldrick et al., 2016; Ma, 2017;), study tours (e.g. Wood 2016; Montero, 2017;), site visits (Ma, 2017), and policy tourism (Cook and Ward, 2011 and 2015; Gonzalez, 2011). This paper investigates study visits that are mainly organised and managed by the two collaborating transnational municipal networks EUROCITIES and the Covenant of Mayors (CoM). Through the so-called CoM Twinning Programme⁹ these two organisations connect European local governments that face similar adaptation challenges to each other and co-organise and facilitate multi-day study visits among them. In the literature facilitators of knowledge transfers, such as EUROCITIES and the CoM, are also referred to as knowledge brokers (see Dotti and Spithoven, 2017; Howlett et al., 2017).

The study visits covered by academic research mostly focussed on topics such urban regeneration (Gonzalez, 2011), mega-events (Cook and Ward, 2011) or transport and mobility (Sheldrick, et al., 2016; Ma, 2017; Montero, 2017;). However, study visits related to climate change adaptation have not yet been extensively studied. Generally, little is known about the transfer process of urban climate policies “in bilateral cooperation that embeds knowledge gaps and different political context” (Shefer, 2019: 61) and “how they are reinterpreted in each context” (Fisher, 2014: 154). In addition to that, this paper addresses several further research gaps identified in previous publications. For instance, Cook and Ward (2011) remarked that, despite being a commonly used tool in urban governance, we still know little about the results and importance of study visits. And, although there are many theories and definitions of policy learning, there is still little knowledge on how

⁹ The official name of the program is Covenant of Mayors Twinning Programme. However, it is managed by a consortium of European municipal networks with EUROCITIES mostly managing the application and matchmaking processes.

policymakers actually learn (Gilardi and Radaelli, 2012). Moreover, there is a lack of research on the motivations of the different stakeholders and what stimulates their search for new policies (Marsden et al., 2012). More generally, learning through international cooperation is, despite its growing importance, still an under-researched phenomenon (Vinke-de Kruijf and Pahl Wostl, 2016).

In a nutshell, the paper aims to contribute to a better understanding of learning exchanges among local policymakers: indeed, how do local policymakers actually learn through study visits (if they do)? This overall question is divided into five sub-questions deriving from key research insights and gaps from the literature on policy mobilities and policy learning:

- A: What was the role of the knowledge broker?*
- B: Which forms of learning took place (if any at all)?*
- C: What were the mentor's motivations to host and organise study visits and could they also learn something from the learners?*
- D: Did contextual differences among the partners play a role in learning?*
- E: Could the twinnings lead to policy adoption?*

These questions were addressed through fourteen expert interviews with key stakeholders attending or co-organising the visits, most of them local policymakers. Four twinning visits that included ten municipalities from nine European countries were examined.

The paper is structured as follows: first, the policy mobilities and policy learning literature addressing study visits is reviewed and discussed. Following that is a presentation of the CoM Twinning Programme. Thereafter, the methodology section outlines the case selections and explains the inquiry design. The findings are then presented, followed by their empirical analysis and discussion. Finally, the main conclusions are drawn.

STUDY VISITS AND HOW TO EXAMINE THEM (LITERATURE REVIEW)

This section introduces the key policy mobilities and policy learning literature related to study visits. At first, study visits are defined and explored. Thereafter, key insights from the literature relevant to examine study visits are presented and grouped into the five themes that determine the research questions of this paper.

EXPLORING STUDY VISITS

“Urban politics and policy are never just local” (Baker and Tenemos, 2015: 824). Indeed, the literature on policy mobilities “emphasises the mobile and changeable character of policies” (Peck and Theodore, 2010: 170). Therefore, researchers center their attention on “the processes, practices and resources brought together to construct, mobilize and territorialise policy knowledge” (Baker and Tenemos, 2015: 825), which is increasingly done through study visits (McFarlane, 2011; Montero, 2017).

Montero (2017: 336) defined study visits as “short visits in which a delegation of people travels to another place to experience something with potential to improve their organisations or places of origin.” McFarlane (2011) characterised them as coordination tools that allow the movement of knowledge. It is not particularly new for local policymakers to learn from their peers with the intention to transfer ideas from elsewhere back to their own place. The first documented study visit between local governments probably took place around the early nineteen-hundreds when the idea of garden cities was promoted throughout the United Kingdom (Montero, 2017). However, in recent years, learning through study visits has become more common (Gonzalez, 2011). One main reason for this was its promotion, organisation, and facilitation through national and international institutions such as Interreg or EUROCITIES (Gonzalez, 2011).

Gonzalez (2011) and Cook and Ward (2011 and 2015) embedded study visits in a phenomenon they called policy tourism. Gonzalez associated classic leisure tourism with the travels of “urban policy tourists” who go to other places to learn about innovative policies. Similar to leisure tourism, “policy tourism is also wrapped up with myths about policies in ‘other’ places” (Gonzalez, 2011: 1400). However, a study visit is not a cruise but is a key approach to learn about policy and disseminate knowledge (Ma, 2017). The findings of Montero (2017) and Gonzalez (2011) suggest that study visits are not just “neutral learning devices” (Montero, 2017: 346). Indeed, they can help create legitimacy (Gonzalez, 2011) to initiate policy change (Montero, 2017). Furthermore, the participants of the visits are often selected based on “their capacity to influence policy back home” (Montero, 2017: 337). In this context, Ma (2017) showed that study visits facilitate the transfer and diffusion of policies from “innovation stars.” However, despite enjoying growing popularity, the actual learning possibilities enabled by study visits were contested by critical urban geographers. Indeed, as pointed out by Montero (2017: 338), there are concerns that those tours could be or become “lobbying instruments in the hands of elite local actors.”

EXAMINING STUDY VISITS

In the following sub-sections, five themes that need to be considered for the examination of study visits are introduced and explained. The themes derived from key findings and research gaps of the policy mobilities and policy learning literature. These five themes determine the five sub-questions this paper addresses and closely relate to the paper's main research question: how do local policymakers learn through study visits (if they do)?

i) The role of knowledge brokers

What all the visits examined in this paper have in common is that they were facilitated and co-organised by a knowledge broker. Various referred to as brokers, boundary organisations, and intermediaries, the literature confirms the emergence of new actors acting between the producers and the users of knowledge (Dotti and Spithoven, 2017). In the policy mobilities literature these brokers are also referred to as transfer agents (see McCann, 2011).

In this paper, the broker is a consortium of transnational municipal climate networks (CoM, n.d.b). As Borrás and Radaelli (2011) outlined, international organisations engaging in the transfer of knowledge often have clear normative ideas of how policymakers should learn. To put those ideas in practice, they often provide a variety of instruments. These instruments include facilitated coordination tools such as study visits (Borrás and Radaelli, 2011).

Knowledge brokers have a key function since they can link groups that otherwise would remain disconnected (Howlett et al., 2017). Knockaert and Spithoven (2014) highlighted that knowledge brokers are crucial actors since “not all knowledge can be ‘traded’ as a commodity because it requires adaptation and translation” (as cited in Dotti and Spithoven, 2017: 1). Also, it is the broker's job to find the “right” match and connect the most suitable stakeholders to each other (Dotti and Spithoven, 2017). This is precisely what the municipal network organisations mentioned above did for the CoM Twinning Programme.

ii) Different forms of learning

For the study of policy learning, Kemp and Weehuizen (2005) suggest to distinguish three different forms of learning: technical learning, conceptual learning, and social learning.

Technical learning is learning about certain instruments and how those could be improved to achieve a certain goal (Kemp and Weehuizen, 2005). More precisely, it is about the search for appropriate policy instruments to achieve previously set goals (Kulsum and Sánchez-Triana, 2008). Rather than contesting these goals, technical learning “just” focuses on how to implement them (ibd.).

Conceptual learning aims to see the bigger picture or look at an issue from a new perspective (e.g. developing strategies or overall goals) (Kemp and Weehuizen, 2005). It includes debating appropriate strategies and goals or reformulating them (Kulsum and Sánchez-Triana, 2008).

Social learning means learning about values, norms, or responsibilities (Kemp and Weehuizen, 2005). Of particular importance are “multi-stakeholder views and information for improving both technical and conceptual learning” (Kulsum and Sánchez-Triana, 2008: 161). Given the evident overlaps between conceptual and social learning, a clear distinction is not always possible (Kemp and Weehuizen, 2005).

iii) Motivation to organise and host study visits

The literature on policy mobilities tells us that cities and towns that have and want to maintain the image of being progressive in a particular field often organise study visits and invite visitors to learn from their models. In this context, the branding of the study destination (Anderson, 2015) and the strategic self-promotion of their place by local policymakers play a key role (Fisher, 2014). Two popular and well-studied examples are Bilbao and Barcelona, which regularly welcome policymakers from abroad to learn more about (allegedly) successful urban regeneration (see Gonzalez, 2011).

Besides the motivation to use study visits as strategic instruments for place branding, the question emerges on the host municipality’s own learning opportunities. While there is scientific evidence that learning from supposedly leading municipalities can help a learning municipality, little attention has been paid to the potential learning opportunities for the host municipality of the study visit. Indeed, Kern (2019) found that there is successful learning dynamic in European local climate governance between leading, following or lagging municipalities and that “upscaling local experiments helps to close the gap between these actors” (p. 125). Then again, it is unclear if and how a “leading” municipality learns through these exchanges.

iv) Contextual differences among the learning partners

Transnational learning, as increasingly done through study visits, also requires taking into account the role of different institutional or cultural contexts and how these can influence the learning outcomes or the adoption of policies. In this regard, Stead and Pojani (2018), who focussed on the international circulation of Dutch transport and urban planning policies, found that “in many cases, contextual differences (e.g. cultural and social norms, language, planning legislation and financial resources available to planning) limit the extent to which Dutch planning approaches can be employed elsewhere” (p. 59). Fisher (2014), who studied the movement of urban climate policies in India, also emphasised the key role of “the particular cultural context” and stressed that “the spaces for policy mobility need to be catered” to it (Fisher, 2014: 171).

v) Learning and policy adoption

A possible and desired outcome of a twinning could be the adoption of a policy by a participating municipality as a result of a learning exchange. This raises the question about the relationship between learning and policy adoption. In this regard, Kemp and Weehuizen (2005) suggest exploring what role learning has played for policy change or adoption.

It is important to emphasise that policy adoption is a complex process that starts with recognising the issue and often requires the involvement of several government levels (Prater and Lindell, 2000). Furthermore, it usually takes time (Prater and Lindell, 2000; Jaffe et al., 2005). Consequently, there needs to be sufficient time between the study visit and the examination of possible policy adoption. Indeed, for the examination of policy learning, Kulsum and Sánchez-Triana (2008: 161) suggested choosing “long time frames and to have conservative expectations about the potential for actual learning.”

The literature on policy mobilities tells us that adoption usually means translating a policy into the specific local context while mere replication is rarely considered to be useful (Stead and Pojani, 2018). Then again, this process of translation and, generally, how policies are reinterpreted in different contexts is not well understood (Fisher, 2014; Jokinen et al., 2018;).

To conclude, it needs to be highlighted that even if no policy adoption has taken place, study visits can be helpful for local policymakers. Indeed the “simple inspiration and openness to knowledge” can help “practitioners, politicians or academics to understand their ‘home’ situation better and to consider their own practices and knowledge in a different light or with a more critical eye” (Stead and Pojani, 2018: 64).

THE COVENANT OF MAYORS TWINNING PROGRAMME

This section briefly introduces the CoM Twinning Programme. At first, the emergence history of the eponymous CoM, its goals and its embeddedness in the EU policymaking framework are described. Thereafter, a closer look is taken at the actual Twinning Programme. More detailed, how it was conceived, how it functions and how it evolved over the years.

The programme was established in 2015 under the name Mayors Adapt Twinning Programme (EUROCITIES, 2016b). Mayors Adapt was a climate change adaptation initiative launched by the European Commission (EC) in

2014 (Council of European Municipalities and Regions, 2015). In 2015, Mayors Adapt merged with the European mitigation initiative CoM that was established in 2008 (CoM, n.d.a; EUROCITIES, 2016b). The new initiative was named the Covenant of Mayors for Climate and Energy and focuses on mitigation and adaptation at the local level. With the ending of Mayors Adapt, the programme was renamed the CoM Twinning Programme (Alcaraz and Cappelletti, 2018).

The EC established the CoM in 2008 shortly after the European Parliament had adopted its 2020 climate and energy package. The package included goals for the reduction of greenhouse gas emissions, an increase of renewable energies, and an increase in energy efficiency (EC, 2014). Initially, these were goals for the EU member states, but, through the CoM, the local level was included, and municipalities were explicitly encouraged to surpass their own country's ambitions (COR, 2015). A local government that joined the CoM committed to the reduction of greenhouse gas emissions by at least twenty percent on its territory, a 2020 goal, or by forty percent, which refers to the 2030 goals, and to develop a joint approach for tackling climate mitigation and adaptation (CoM, n.d.a; Kona et al., 2015). Therefore, every member is asked to develop and implement a climate and energy action specifying how the targets set are going to be achieved (CoM, n.d.a). Until April 2018, 7,755 local authorities had joined the CoM (CoM, 2018).

The CoM exemplifies the increased importance of the local level within the EU policy-making framework and demonstrates how the EU has identified networking as a strategy for policy dissemination and implementation. The networking approach - more precisely, the networking among municipalities and among many different initiatives or institutions - is reflected in the interrelationships between the organisations managing the Twinning Programme. As the name indicates, the programme is formally run by the CoM. In fact, it is managed by the capacity building and knowledge sharing unit of the CoM which consists of staff from the Climate Alliance, EUROCITIES, and Energy Cities, further European climate initiatives (CoM, n.d.b).

Through the programme, municipalities or provinces are connected to each other to collaborate and share experience and knowledge on one or more topic related to adaptation or mitigation. Past twinnings covered, for example, cloudburst management, water management, how to ensure stakeholder involvement and awareness, and how to deal with heat waves or urban heat islands (CoM and Mayors Adapt, 2017). Municipalities or provinces that successfully applied for participation received funding to cover the travel costs of the visit (CoM, 2017). As illustrated in Figure 1, since 2016, forty-three municipalities and two provinces have participated in the programme, and twenty twinnings were realised (CoM, 2016a; Alcaraz and Cappelletti, 2018). The main stakeholders attending twinning visits and being present throughout the entire programme were the learning local policymakers representing their municipalities (visitors or hosts). However, depending on the twinning, several

programme year, also provinces were allowed to participate and visit a host local government, while a return visit to the twinned local government was added as a compulsory element of the programme (Alcaraz and Cappelletti, 2018).

METHODOLOGY

The methodology section is organised as follows: first, the selection of the examined twinings and surveyed municipalities is outlined. What follows is the explanation of the inquiry design.

EXPLAINING THE CASE SELECTION

Overall, four twinings were examined: three mentoring and one peer learning exchange (see Table 1). These included the mentoring exchanges between Copenhagen and Antwerp, Cascais and Ilion, and Bologna, Lleida, and Terra di Leuca, and the peer learning exchange between Bratislava, Bremen, and Arnhem.

There were three main criteria that determined the choice of cases. Firstly, it was important to select twinings that were as far in the past as possible. As outlined before, studying and assessing policy learning also requires looking at its impact on policy change or adoption (Kemp and Weehuizen, 2005). Then again, policy adoption takes time (see Prater and Lindell, 2000; Jaffe et al., 2005). The assumption was that selecting cases from the earlier twinning rounds would increase the probability to study exchanges where policy adoption actually took place.

Secondly, both types of twinings should be represented: mentoring and peer learning exchanges. With the first criteria in mind, only mentoring exchanges from the first twinning round (2016) and peer learning exchanges from the second round (2017) were selected (there were no peer learning exchanges in the first round). By applying the described exclusion criteria, eleven mentoring and two peer learning exchanges were shortlisted.

TABLE 1 – Examined twinnings.

	Copenhagen (mentor)	Antwerp (learner)	
<i>Main twinning topics</i>	Cloudburst management, urban water management, green climate adaptation		
<i>Background information</i>	<ul style="list-style-type: none"> • Capital of Denmark • 528,208 inhabitants 	<ul style="list-style-type: none"> • Capital of the province Flanders (Belgium) • 512,000 inhabitants 	
<i>Climate</i>	<ul style="list-style-type: none"> • Temperate oceanic/continental climate 	<ul style="list-style-type: none"> • Temperate oceanic climate 	
<i>Climate change impacts</i>	<ul style="list-style-type: none"> • Extreme temperatures • Flooding • Sea level rise 	<ul style="list-style-type: none"> • Extreme temperatures • Flooding • Sea level rise • Storms 	
<i>Climate action</i>	<ul style="list-style-type: none"> • 2009: joined the CoM • 2011: adaptation plan • 2012: cloudburst management plan 	<ul style="list-style-type: none"> • 2009: joined the CoM • 2015: adaptation plan 	
	Cascais (mentor)	Ilion (learner)	
<i>Main twinning topics</i>	Urban green parks and green corridors, water management, strategic adaptation planning		
<i>Background information</i>	<ul style="list-style-type: none"> • Municipality in the metropolitan area of Lisbon (Portugal) • 188,244 inhabitants 	<ul style="list-style-type: none"> • Municipality in the metropolitan area of Athens (Greece) • 78,122 inhabitants 	
<i>Climate change impacts</i>	<ul style="list-style-type: none"> • Extreme temperatures • Droughts • Water scarcity • Storms 	<ul style="list-style-type: none"> • Extreme temperatures • Droughts • Water scarcity • Storms 	
<i>Climate action</i>	<ul style="list-style-type: none"> • 2008: joined the CoM • 2010: strategic climate plan 	<ul style="list-style-type: none"> • 2010: joined the CoM 	
	Bologna (mentor)	Lleida (learner)	Terra di Leuca (learner)
<i>Main twinning topics</i>	EU funded projects (LIFE+, Central Europe, IEE, Comenius), water scarcity, agricultural needs, heatwaves, extreme rain events		
<i>Background information</i>	<ul style="list-style-type: none"> • Capital of the region Emilia-Romagna (northern Italy) • 374,561 inhabitants 	<ul style="list-style-type: none"> • Capital of the province Lleida in the autonomous region Catalonia (northern Spain) • 138,144 inhabitants 	<ul style="list-style-type: none"> • Union of municipalities in the region Puglia (southern Italy) • 33,650 inhabitants
<i>Climate change impacts</i>	<ul style="list-style-type: none"> • Extreme temperatures • Droughts • Water scarcity • Storms 	<ul style="list-style-type: none"> • Extreme temperatures • Droughts • Water scarcity • Storms 	<ul style="list-style-type: none"> • Extreme temperatures • Droughts • Water scarcity • Storms
<i>Climate action</i>	<ul style="list-style-type: none"> • 2008: joined the CoM • 2013: adaptation strategy 	<ul style="list-style-type: none"> • 2009: joined the CoM • 2015: adaptation plan 	<ul style="list-style-type: none"> • Not a member of the CoM
	Bratislava (peer-learner)	Bremen (peer-learner)	Arnhem (peer-learner)
<i>Main twinning topics</i>	Urban heat islands, intelligent and cost-effective water management, green infrastructure		
<i>Background information</i>	<ul style="list-style-type: none"> • Capital of Slovakia • 465,327 inhabitants 	<ul style="list-style-type: none"> • City state (northern Germany) • 546,451 inhabitants 	<ul style="list-style-type: none"> • Capital of the province Gelderland (The Netherlands) • 149,271 inhabitants
<i>Climate change impacts</i>	<ul style="list-style-type: none"> • Extreme temperatures • Flooding • Water scarcity 	<ul style="list-style-type: none"> • Extreme temperatures • Flooding • Sea level rise 	<ul style="list-style-type: none"> • Extreme temperatures • Flooding • Water scarcity
<i>Climate action</i>	<ul style="list-style-type: none"> • 2012: joined the CoM • 2014: adaptation strategy 	<ul style="list-style-type: none"> • 2008: joined the CoM • 2012: adaptation strategy 	<ul style="list-style-type: none"> • 2012: adaptation strategy • 2014: joined the CoM

Source: own table based on Free Hanseatic City of Bremen, 2012; CoM & Mayors Adapt, 2016b, 2016c, 2017; EEA (European Environment Agency), 2016a, 2016b, 2016c, 2016d; CoM, 2018.

The third criterion concerned the similarities and differences between the twinning partners. The twinings included exchanges with similar but also quite different partners. For instance, there were differences, or similarities, in their size, stage of work, and adaptation challenges (see Table 1). Those features were also reflected in the choice of examined cases. Copenhagen and Antwerp represent a twinning between local governments from northern Europe; Cascais, Ilion, and Bologna, Lleida, and Terra di Leuca were south-to-south twinings; while Bratislava, Arnhem, and Bremen represent a twinning between two northern European and a post-socialist, east-central European city.

The reason why two mentoring exchanges between rather similar partners (Copenhagen and Antwerp, and Cascais and Ilion) were selected was mainly because, in one case, the mentor was a very experienced host of international delegations (Copenhagen) and, in the other case, the mentor was doing this for the first time (Cascais).

EXPLAINING THE INQUIRY

Interviews with twinning participants were carried out between March 2017 and July 2018. The interviews were semi-structured and open-ended and were conducted on-site, via Skype, phone, or e-mail. The questions asked to the interviewees oriented on five themes deriving from key insights and research gaps of the policy mobilities and policy learning literature as outlined in the literature review:

- A: What was the role of the knowledge broker?*
- B: Which forms of learning took place (if any at all)?*
- C: What were the mentor's motivations to host and organise study visits and could they also learn something from the learners?*
- D: Did contextual differences among the partners play a role in learning?*
- E: Could the twinings lead to policy adoption?*

The target group of the inquiry was quite specific: how do local policymakers learn through study visits (if they do)? Consequently, it was mainly local policymakers who were actively involved in the twinning visit (as organisers or as visitors) who were chosen as interviewees. They could be found in the corresponding twinning report where all attendees were listed. Nevertheless, other stakeholders that attended the twinings or contributed to their organisation (e.g. private partners, other municipal actors) were interviewed. The full list of interviewees can be found in Table 2.

Undoubtedly, focusing on local policymakers has the danger of relying too much on the perceptions of only a few stakeholders. Therefore, other sources

and necessary information to get an impression of the twinnings were used and analysed to double check the given answers. The most relevant documents were the twinning reports, a document of usually around fifteen pages long. It contains, among other details, the agenda and the main topics of the visit.

A component of a potential triangulation approach could have been participant observation. However, there were two main reasons not to include this. Firstly, as highlighted before, policy adoption needs time and, thus, primarily first round twinnings were selected. Secondly, the twinnings were not particularly designed as open events for public attendees but as an exclusive exchange among peers.

TABLE 2 – Interview partners.

Twinning	Affiliation	Position
Antwerp – Copenhagen	Municipality of Antwerp	Project manager, climate adaptation
Antwerp – Copenhagen	Municipality of Antwerp	Programme Leader, sustainable city
Antwerp – Copenhagen	Municipality of Copenhagen	Head of programme for resilient and sustainable city solutions
Antwerp – Copenhagen	Municipality of Copenhagen	Former director of the Copenhagen climate resilient neighbourhood project Klimakvarter
Antwerp – Copenhagen	HOFOR, Greater Copenhagen utility company	Chief consultant
Cascais – Ilion	Municipality of Cascais	Coordinator innovation officer
Cascais – Ilion	Municipality of Ilion	Former employee of the technical department and member of the panel of European programmes
Bologna – Lleida – Terra di Leuca	Municipality of Bologna	Technician environmental department – sustainability office
Bologna – Lleida – Terra di Leuca	Municipality of Lleida	Coordinator responsible for environmental department Lleida municipality
Bologna – Lleida – Terra di Leuca	Municipality of Lleida	Technician
Bratislava – Arnhem – Bremen	Municipality of Arnhem	Chief officer, public space
Bratislava – Arnhem – Bremen	Municipality of Bremen	Policy adviser
Bratislava – Arnhem – Bremen	Comenius University, Bratislava	Professor of environmental sciences
No specific twinning	EUROCITIES	Projects and policy support officer

Source: own table.

FINDINGS

The following findings section summarises and explains the main results of the interviews and is divided into five sub-sections that orient on key research insights and gaps of the policy mobilities and policy learning literature.

A: What was the role of the knowledge broker?

To facilitate and organise the twinnings, EUROCITIES had several duties. This included setting up and advancing the programme, reviewing the applications, selecting the twinning partners, and accompanying and attending the twinning visits. Referring on interviews with several local policymakers and a representative of EUROCITIES, the following describes and discusses this in more detail.

As managers of the programme, EUROCITIES examined the applications and matched the twinning partners. The main criteria to twin the “right” local governments centred around their preferred exchange form (mentoring or peer learning), the economic and institutional context, the adaptation challenges, and the stage of advancement in adaptation planning. For the preparation of the visits (main topics and goals, schedule), the partners were assisted by a twinning facilitator from EUROCTIES or CoM. In most cases, the twinning facilitator also attended the visit.

The further development of the programme is strongly based on the feedback and the experiences provided by past twinning participants. When asked about possible programme improvements, Ilion and Bremen remarked that a two or three-day twinning was not enough to understand and discuss all issues at stake. Additionally, Bologna and Bremen suggested that a second meeting could have improved the twinning outcomes. Bremen specified that, for a second meeting, which could take place half a year after the first visit, every partner could reflect on the lessons learned and prepare further questions. It was remarked that, during one visit, it is hardly possible to fully understand a new measure or policy.

It was because of these previous twinning participants’ remarks that EUROCITIES decided to make return visits a compulsory component of the programme after the second twinning round. Moreover, during the first two rounds, EUROCITIES did not demonstrate efforts to keep the collaboration alive. Indeed, all interviewees confirmed that, after completing the final twinning report, EUROCTIES did not contact them again. However, for the third round, EUROCITIES expects and requests the partners to stay in close contact to organise and prepare the return visit one year after the first visit. Helping to maintain contact could be seen as a task for a knowledge broker.

Indeed, the interviews revealed that only very few of the twinning partners were still in contact after the end of the formal programme. In some cases, the collaboration ended immediately after finalising the twinning report. In other cases, it continued for some months in the form of post-twinning information exchanges (more on this in sub-section E).

B: Which forms of learning took place (if any at all)?

In the following paragraphs, the different forms of learning that took place among the policymakers or that were intended to be performed are presented and explained.

Looking at the main motivations for the different municipalities (mentors, learners, peer-learners) to participate in the twinning also allows drawing conclusions on their learning objectives. These main motivations are summarised in Table 3.

TABLE 3: Motivations to participate in the twinings¹⁰

Clear learning objective	Other objectives
<ul style="list-style-type: none"> • Antwerp (L), Bremen (PL): seeking inspiration and ideas for strategy development (<i>conceptual learning</i>). • Ilion (L): seeking inspiration and ideas to start the adaptation work from scratch (<i>conceptual learning</i>). • Arnhem (PL): learning about stakeholder involvement strategies (<i>technical learning</i>). 	<ul style="list-style-type: none"> • Bologna (M), Cascais (M), Ilion (L), Lleida (L): generating new EU-level partnerships for future projects. • Cascais (M), Copenhagen (M): receiving a critical review of their work. • Copenhagen (M): city branding.

Source: own table.

Antwerp’s and Bremen’s main motivation to participate in the twinings was that the cities identified a window of opportunity. In Antwerp, major infrastructural works were taking place which opened up new possibilities to co-design urban development in a more climate adaptive way. At the same time, the city was currently in the development phase of its water plan. Bremen felt that the twinning opportunity came at the right moment because the city was in the midst of its adaptation strategy development and looking for further inspirations and experiences. Both cities were in a strategy development phase (seeing the bigger picture, looking at an issue from a new perspective), which represents conceptual learning (see Kemp and Weehuizen, 2005; Kulsum and Sánchez-Triana, 2008). The learning experiences of Bremen and Antwerp are explained in more detail in sub-section D (*Did contextual differences among the partners play a role in learning?*) and E (*Could the twinings lead to policy adoption?*).

¹⁰ M: mentor, L: learner, PL: peer learner.

On the other hand, Bremen's twinning partner, Arnhem, already had a strategy that had been approved by the city council. Their main motivation to participate was to find answers to a specific question: how can a local government successfully involve stakeholders to put the approved strategy into practice? Arnhem's hope was to learn more about this from its twinning partners, Bremen and Bratislava. Arnhem intended to perform technical learning, which is defined as learning about certain instruments and how those could be improved to achieve a previously set goal (see Kemp and Weehuizen, 2005; Kulsum and Sánchez-Triana, 2008). However, Arnhem's clearly defined learning objective was not met through the twinning visit. Arnhem's representative explained this with the different progress of strategy development of the partners. While Bratislava was at the stage of climate mapping and Bremen in the midst of its strategy development, Arnhem had already an approved strategy.

In a sense, among the learners, Ilion represents the counter-example to Arnhem. Ilion had no previous experience in adaptive planning (and thus no very specific questions) but basically started the work with the twinning with Cascais. In 2015, heavy rainfall in the Athens region caused twenty-four deaths and revealed Ilion's vulnerability. Since starting from scratch, Ilion's motivation was to learn as much as possible (conceptual learning) from a comparable municipality that had already successfully implemented actions under similar conditions (climate, institutional context, little financial means).

Even though Cascais' community gardens, that were a key component of the visit, proved to be non-transferable for Ilion due to too much air pollution, Ilion described this particular item on the agenda as the most helpful one of the entire exchange. This was mainly because through this specific example the hosts from Cascais could explain in-depth how to effectively involve citizens in urban policy-making processes. The interviewee from Ilion highlighted that this approach could also work in several other contexts of urban policy-making and was the key lesson learned through the twinning.

Contrary to the other learners, Lleida's decision to apply for the Twinning Programme was not driven by specific learning objectives. Instead, their main goal was to establish new partnerships with local government practitioners within the EU. This motivation was due to positive past experiences with other EU projects that had led to long-term relationships with other local governments. Then again, it turned out that through the twinning visit to Bologna, Lleida started a conceptual learning exchange that, in the end, even led to policy adoption in the municipality. This exchange is explained in more detail in sub-section E.

C: What were the mentor's motivations to host and organise study visits and could they also learn something from the learners?

As shown in Table 3 (sub-section B), for the participation in the twinings none of the two surveyed mentors had defined specific learning objectives. Indeed,

the question arises why a mentoring local government organises a multi-day visit to provide its solutions to a learning municipality for “free?” Some might claim that this could be done through a paid consultancy.

Apart from the predictable answer of sharing visions to help others, the interviewees from the mentors Copenhagen and Cascais also explained that a key motivation was to receive a critical review. A representative of HOFOR, an autonomous municipal water utility company in Copenhagen, pointed out that those desired critical comments are rather given in the course of an in-depth study visit with peers doing the same job elsewhere than, for example, at a conference.

The interviewees from the mentors Bologna and Cascais stated that the main motivation to participate was to generate new European level partnerships for future projects. The interviewee from Cascais specified that this could, for instance, be joint grant applications for EU projects.

Copenhagen’s head of programme for resilient and sustainable city solutions remarked that hosting guests for a study visit is part of the city branding and helps the city to become known for being progressive and innovative.

With regards to the own learning experiences, it was remarked by the mentors Bologna, Cascais, and Copenhagen that a learning exchange is never completely one-sided, with one partner only “teaching” and another only “learning.” However, when the mentors were asked to name concrete own learning outcomes, they could give no concrete examples. Instead, the lessons drawn involved realising that the learners were facing the same challenges and difficulties as they did when they were in earlier stages of their adaptation work. This, however, hardly qualifies as learning.

Copenhagen remarked that it is always important to continuously update and improve the programme for the visiting local governments. The former director of the Copenhagen climate resilient neighbourhood project, Klimakvarter, explained that, rather than learning from the guests, the main benefit of the visits was the strengthening of the internal connections to other involved municipal departments. Being a fixed part of the frequently organised visits meant a close collaboration with other municipal departments, particularly with the resilient and sustainable city solutions unit. At peak times, the former director organised two-hour visits every week to Copenhagen’s resilient model neighbourhood Sankt Kjelds.

There were also cases when municipalities decided against mentoring. The interviewee from Arnhem explained that they were initially supposed to be twinned for a mentoring exchange. However, they had the impression that they would be mainly helping another local government without learning a lot themselves. Instead, they decided to participate in the peer learning exchange

with Bratislava and Bremen. Indeed, the representative of EUROCITIES stated that, in the previous application rounds, they had trouble to find mentors. After reviewing the first twinning rounds, EUROCITIES had the impression that the responsibility to organise the visits was distributed unevenly, to the disadvantage of the mentors. For instance, it was the mentor's duty to set up the visits on-sites (e.g. contacting, inviting and instructing all participating stakeholders or checking the availability of and if necessary booking the sites to be visited).

D: Did contextual differences among the partners play a role in learning?

Many municipalities collaborating through the twinning were quite different from each other in terms of size, institutional traditions, procedures, and capacities. Almost all exchanges were between partners from different countries. But how did those differences affect the learning processes and outcomes? Or, how did similarities affect them?

Several interviewees, particularly the non-mentors, reported that they were explicitly looking for similar partners. Specifically, they wanted to work with local governments that faced similar adaptation challenges and grappled with similar questions.

Of the sample studied, Bologna (mentor), Lleida (learner), and Terra di Leuca (learner) was the twinning with the most heterogeneous partners. Lleida stated that, while the learning exchange with Bologna was fruitful for them, there was no learning or even knowledge exchange between them and Terra di Leuca. Lleida argued that this was mainly because they could not find any common ground. Lleida is a mid-sized town while Terra di Leuca is a union of very small municipalities located in a rural and touristic area. Conversely, Lleida felt that they could learn a lot from Bologna, a partner they felt was more similar (see sub-section E). As a municipality, Bologna is just as different from Terra di Leuca as Lleida. However, since having to comply with the same national (administrative) rules, their exchange was described as helpful for both sides.

Bremen highlighted that it is generally important to understand the context of the partner (e.g. institutional settings, decision-making processes, financial situation, funding landscape). However, especially at the international level, this is quite time-consuming. Moreover, the greater the difference in the context, the longer it takes to understand the other municipality's situation. EUROCITIES pointed out that adding the return visit to the programme was also done to give the partners more time to understand each other's context and to reflect on it between the visits.

A look at the geographic distribution of the twinning partners (see Figure 1) reveals that the vast majority of the twinings were either between local governments from northern/western Europe or southern Europe. In fact, there was not one single twinning between partners from the north and the south. In

that context, EUROCITIES remarked that it was not their particular goal not to organise north-south twinnings but it was the result of the evaluation of the received applications. For instance, the adaptation challenges proved to be similar among the southern municipalities on the one hand and the northern municipalities on the other hand. However, EUROCITIES also reported that they were aware of some major institutional and legislative differences between northern and southern European countries that worked against those twinnings.

E: Could the twinnings lead to policy adoption?

The adoption of measures or policies studied during the visits could be seen as one, probably the key, factor to determine the “success” of a twinning. Indeed, for EUROCITIES, policy adoption is a key programme goal. EUROCITIES reported that the EC specifically requested that they design the programme to focus on increasing the likelihood that the studied measures or policies could be applied reciprocally to learner and peer learning municipalities. As described earlier, return visits were added as a compulsory part of the programme. Through this, EUROCITIES hopes to trigger policy adoption.

For all cases where policy adoption happened or is in the discussion phase, the interviewees confirmed that referring to the study visits helped to increase the credibility of the project within their municipal administrations. In this context, a policy advisor from Bremen invoked the adage of the “prophet” who was ignored in his own country. Consequently, demonstrating that one has looked outside of the box could be helpful for persuading the municipal administration.

The interviewees from Bratislava, Bremen, and Ilion remarked that they took back several suggestions and ideas that were discussed and evaluated after the visit. For instance, Bratislava’s adaptation action plan was inspired and enriched by the common discussion with Arnhem and Bremen. However, there were also two very concrete cases of policy adoption in Lleida and Antwerp that are presented in more detail in the following paragraphs.

The interviewees from Lleida reported that the urban forests project they are currently implementing was directly inspired by the visit in Bologna. Through a visit to Urban Center Bologna, Lleida’s delegation was introduced to Bologna’s social urban gardening project and its citizen involvement approach. They picked up the idea and adapted it to their local conditions. Lleida is currently redesigning municipal green spaces to establish urban forests together with residents who are planting trees and who will be involved in the future preservation of the forest. To kick off the project, Lleida’s concern was to find and motivate the “right” people to go ahead. Therefore, after the twinning, Lleida requested knowledge, mainly on stakeholder engagement (social learning), from the Urban Center Bologna. The project was discussed with the responsible deputy mayor for environmental affairs and got the approval from the municipal council. Ultimately, Lleida’s environmental department’s visit to

Bologna has led to the realisation of a project that included other municipal departments and municipal employees (e.g. engineers and architects).

The second example of post-twinning policy adoption was in Antwerp. The current development of the municipal water plan and upcoming major infrastructural works allowed Antwerp's climate adaptation unit to actively co-design a large-scale urban redevelopment project. To better adapt to extreme cloudburst events, they saw that they needed to increase the sewage capacity, and decided to do this mainly over-ground.

Copenhagen's internationally renowned cloudburst management concept, part of its adaptation strategy, served as the model for Antwerp. This concept was totally new in Belgium. In collaboration with numerous stakeholders (e.g. municipal companies, architecture, and landscape architecture firms), Copenhagen explained and illustrated the cloudburst plan to the visitors from Antwerp (technical learning). Of particular interest for Antwerp were emergency water exits and buffers. For flood protection reasons, emergency buffers are of great importance for Antwerp's ringway area, one of the cities lowest areas. The plan is to make the buffers greener and design them as a large emergency pool that increases the water absorption capacity, thus preventing or reducing damage in the inhabited areas of the city.

Antwerp's project manager of climate adaptation explained that it was Copenhagen's idea that is being adopted rather than specific technical aspects of it. However, to find the best solution for Antwerp, Copenhagen convinced them to use the same (quite expensive) runoff model. The model will be the basis for Antwerp's cost-benefit analysis and for the risk analysis. To achieve this, a hydrologist from Antwerp was connected to the responsible architects in Copenhagen after the twinning to exchange knowledge regarding the modelling.

DISCUSSION

By interviewing participants of the Twinning Programme that is mainly organised by the European municipal climate networks EUROCITIES and the CoM, this paper examines how local policymakers learn in the field of climate change adaptation. Drawing on insights from the policy mobilities and policy learning literature, the main results of the interviews are discussed in the following sub-sections.

i) Do new information and communication technologies make study visits obsolete?

The examination of the programme showed that the twinnings are much more than just visits on-site. Indeed, under the facilitation of the knowledge broker EUROCITIES there is an extensive information exchange taking place before and to a lesser extent also after the visit. Due to the emergence of new information and communications technologies (ICT) – in the examined cases mainly emails and Skype – physical distances between stakeholders matter much less than in the past. This raises the question of how important the actual and classic study visit still is in contemporary times.

Confirming the findings of Gonzalez (2011) and Montero (2017), study visits help to create legitimacy for a policy or an approach, e.g. within the municipal council, which can result in policy adoption or change. Then again, it is not clear if extensive knowledge and learning exchange on distance could not lead to similar results. Indeed, could not even all knowledge and learning exchanges be realised through emails or phone and Skype calls? To explore this, two further questions that need more careful analysis arise. Firstly, can the described legitimacy equally be achieved through online communication and learning? Secondly, how much does the presentation of a policy on a concrete object on-site actually matter for successful learning (e.g. policy adoption) and can this not also be achieved through online learning?

The results of this paper revealed that the most commonly performed form of learning through study visits is conceptual learning, where seeing the bigger picture or looking at an issue from a new perspective is key (see Kemp and Weehuizen, 2005; Kulsum and Sánchez-Triana, 2008). This might suggest that the presentation on-site still matters. While the paper did certainly not focus on the role of ICT for learning between local governments its actual importance for the examined twinnings was highlighted. This is why a call is raised for more in-depth research on the significance and potential of policy learning on distance, particularly in comparison to visits on-site.

ii) Learning from frontrunners, a few people's story?

This study could confirm Anderson's (2015) and Fisher's (2014) findings that progressive or frontrunners also organise study visits for the purpose of place promotion. Policy tourism (see Gonzalez, 2011) to frontrunners to learn about innovative policies received increasing attention from academics. However, in the fields of climate change adaptation, examinations of policy tourism are still missing. In this study, a first attempt was made to help close this research gap.

Montero's (2017) and Gonzalez's (2011) finding that study visits can help create the legitimacy to initiate policy change can be confirmed. Furthermore, it was shown that study visits to a frontrunner could be successful, assuming that policy adoption is an indicator of success. However, this can only be confirmed in the case of a visiting municipality that is not too different to the host

municipality. What is needed are more in-depth studies covering municipalities that regularly organise study visits in the field of climate change adaptation.

Moreover, the study showed that learning from international partners is more time consuming than learning with national partners since the different institutional context needs to be understood first before assumptions on the adoption potential for the own place can be made (see Stead and Pojani, 2018). Additionally, study visits abroad are more expensive (travel costs), and places in funded programmes are limited. Every town and city needs to adapt to climate change and natural disasters, but not every local policymaker can travel abroad to learn the techniques.

These points taken together, raise serious doubts on the large-scale potential of learning from frontrunners. Firstly, there are only few frontrunners out there. Secondly, what this study has shown and what previous studies have already suggested is that learning exchanges are more successful if the contexts (institutional, cultural, size) of the involved partners are more similar to each other (see Fisher, 2014; Stead and Pojani, 2018). This means that those who learn from frontrunners are most likely local governments that are similar to them and that have already made some progress in adaptation. Consequently, even if successful learning took place, it was still learning within a rather “exclusive club.” Indeed, as pointed out by Montero (2017: 338), there are concerns that those tours could be or become “lobbying instruments in the hands of elite local actors.”

iii) Can learning from an equal become the new gold standard?

The interviews revealed that, from a learning perspective, the mentoring exchanges mostly represent a one-way traffic flow of knowledge from the mentor to the learner. However, the studied mentoring exchanges also proved that these could, in fact, lead to policy adoption (in the learning municipality).

Neither do the findings confirm that peer learning exchanges can trigger policy adoption nor do they suggest they are currently more successful than mentoring exchanges. Nevertheless, even if in its current form mentoring exchanges are more effective (for one party), they simply cannot represent a comprehensive model for the future. It must be noted that EUROCITIES currently exclusively organises peer learning exchanges, also because they were unable to find new local governments willing to act as mentors. Indeed, as mentioned in the previous sub-section, every local government needs to increase its adaptive capacity with regards to climate change and natural disasters but there is only a limited number of frontrunners to learn from. Consequently, it must be explored how mutual learning exchanges between “more ordinary” towns and cities can be improved or rethought in order to improve the learning outcomes and ensure that all involved partners learn.

The peer learning exchanges that are currently organised by EUROCITIES include a compulsory return visits half a year after the initial visits. Consequently, a further examination of the newer round of peer learning exchanges might lead to different results. However, future investigations of study visits should not be limited to the Twinning Programme. Indeed, there are further learning programmes without a clear mentor/learner hierarchy that could be studied. For instance, the United Nations Office for Disaster Risk Reduction (UNISDR) manages the so-called City-to-City Sharing Initiative (UNISDR, n.d.). Another promising programme to study is URBACT, an EU exchange and learning programme to promote sustainable urbanism (URBACT, n.d.). Generally, an investigation of these transnational learning exchange programmes can help to further advance our understanding of the significance of different contexts for learning and the adoption of urban climate policies as called upon by Fisher (2014) and Shefer (2019).

CONCLUSION

Drawing on expert interviews with key local stakeholders, this paper has explored and discussed study visits focussing on climate change adaptation policies. By examining the learning exchanges taking place within the visits, the paper further contributes to a better understanding of an increasingly popular but still under-researched phenomenon.

The results show that the classic study visit was substantially extended by elements of ICT that make the actual visit on-site less central. Future research needs to examine the potential of online communication and learning and whether it can replace the classic visit on-site. Then again, the results also suggest that the on-site presentation of a policy or an approach still matter and give inspiration to the visitors. Indeed, the most common form of learning taking place within the twinnings was conceptual learning (e.g. seeing the bigger picture or looking at an issue from a new perspective).

Moreover, it was shown that participating in a study visit increases the credibility of the presented idea or policy within the local administration of the visiting municipality. Additionally, the findings confirm that study visits are used as strategic instruments by frontrunners, e.g. for the purpose of place branding.

It was demonstrated that, under certain conditions, study visits initiate policy adoption in a learning municipality. However, this occurred only when the peer

municipalities were not too different from each other, particularly in terms of size and institutional context. Despite these generally positive findings, it must be noted that the research can only confirm substantial learning results, particularly policy adoption, within mentoring but not peer learning exchanges. Moreover, within the mentoring exchanges, this applied only to the learning municipalities.

Notwithstanding the above and taking into account that all towns and cities need to adapt to climate change, learning exchanges based on the logic of relatively similar municipalities learning and improving together appear to be the only suitable large-scale solution for the future. There are so many more “ordinary” towns and cities compared to frontrunners. Indeed, the programme organisers and knowledge brokers of the CoM Twinning Programme were unable to find local governments willing to act as mentors after just two years. Therefore, this paper raises an urgent call for more research and practical action on how to improve or even rethink learning exchanges in order to maximise the learning outcomes for all participating parties and to provide solutions for more than just a handful local governments.

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CONCLUDING CHAPTER

Within three distinct research articles, the thesis has explored whether and how learning exchanges among local policymakers within transnational municipal climate networks affect local climate policymaking. By interviewing key stakeholders active in TMCNs or representing local governments that joined them and by studying documents provided by the examined organisations the thesis has contributed to gaining a more nuanced understanding of the functioning of TMCNs and the learning processes taking place within them.

The thesis addressed several key research gaps that were identified in previous work. In particular, that little is known about the TMCNs impacts on the ground (e.g. on climate policy formulation) (Bulkeley et al., 2003; Bulkeley, 2010; Fünfgeld, 2015; Bernstein and Hoffmann, 2018; Busch et al., 2018) and that more careful analysis of TMCNs is urgently needed (Bouteligier, 2013; Lee, 2013; Gordon, 2013; Gordon and Acuto, 2015; Gordon, 2016). Moreover, learning exchanges among local policymakers (Tjandradewi and Marcotullio, 2009; Gilardi and Radaelli, 2012), particularly transnational learning (Vinke-de Kruijf and Pahl Wostl, 2016) are generally understudied. These are very relevant research gaps since local governments worldwide are increasingly exposed to the impacts of climate change and urgently need to find solutions of how to adapt to it. There is growing evidence that participation in TMCNs and learning from local policymakers that face similar challenges represent a key way to respond to the challenges posed by climate change.

Applying a desk research methodology, in Article 1 the various TMCNs were defined, systemised and distinguished from each other. This was done by developing a set of new dimensions and indicators that significantly extended and modified the present TMCN-typology. Article 2 encompassed a global survey addressing key TMCN and local policymakers exploring the C2CL processes taking place within TMCNs. In Article 3 the focus was on study visits, a learning tool offered by several TMCNs. By interviewing participants of study visits facilitated by a consortium of European TMCNs it was for the first time systematically explored how local policymakers learn through study visits in climate change adaptation.

Starting with the TMCN-organisations itself, the thesis has revealed that TMCNs can hardly be understood as one uniform phenomenon (Article 1). Indeed, many of them vary widely in terms of organisational structure, governance, or the number and kinds of the involved partners. Moreover, that some TMCNs are very exclusive and only open to a limited number of local governments, while others are very inclusive and open to almost all local governments. Another hard dividing line can be drawn between more traditional public governance

oriented TMCNs on the one hand and new emerging non-state funded TMCNs that call for stronger private-public partnerships on the other.

A global survey exploring the C2CL processes taking place within TMCNs demonstrated that many exchanges that were perceived as learning by the involved stakeholders strictly speaking do not qualify as learning but are rather about the sharing of knowledge (Article 2). Having said this, it could also be demonstrated that in-depth learning is happening within TMCNs, particularly through multi-day study visits facilitated and organised by these organisations. However, the main perceived added value of learning and knowledge sharing within TMCNs was widely seen within their function as facilitator of personal networking among policymakers.

The examination of a study visit programme on climate change adaptation facilitated and managed by European TMCNs revealed that multi-day study visits can but do not necessarily lead to successful learning exchanges and policy adoption (Article 3). Overall, it depends on several factors, particularly on a certain homogeneity between the learning partners in terms of size, institutional context. Moreover, successful learning only took place from frontrunner municipalities to learning follower municipalities but not the other way around.

Additionally to these key findings the three papers and the thesis as a whole have raised several critical questions and identified further research needs that are herewith discussed:

i) Focusing on municipal networks rather than on municipalities?

Although the thesis could demonstrate there is growing evidence that TMCNs are becoming influential and have an impact on local climate governance it needs to be stressed that it is not the TMCNs but the individual local governments that eventually implement (or do not implement) local climate policies. The key point is that local governments are becoming more connected to each other and they are successfully sharing knowledge and learning from each other about climate policies. For now, TMCNs are key organisations to connect local governments to each other. However, if local climate governance could be facilitated more effectively in the future by organisations other than TMCNs stands entirely open.

TMCNs have become a reality and make a contribution but their main purpose is to serve its members and not the other way around. Aars and Fimreite's observation from 2005 that TMCNs "are predominantly legitimised on the basis of the results they achieve, not the processes through which they are reached" (p. 244) can still be confirmed for today. Apart from 100RC, that finances its members a position, TMCNs have no power over local governments. Indeed, the commitments the members entered into are on a voluntary basis and not binding (see Rosenau, 2004; Kern and Alber, 2009; Kern and Bulkeley, 2009).

Consequently, TMCNs need time and time again be “attractive” for its members and orient on their needs.

TMCNs should not be seen as an end in itself and it should be closely monitored if their core activities remain consistent with their initial climate action goals. Consequently, the future assessments, as well as the further development and advancement of TMCNs should foremost orient on how they cater their member’s needs and how successfully they have supported the implementation of local climate policies. In particular, this addresses questions of how TMCNs do effectively assist its members (e.g. technically and financially), connect local governments to each other and facilitate mutual knowledge and learning exchanges. In return, this also means critically questioning if all services offered by TMCNs is indeed beneficial for local climate governance. As an example, do TMCN-members benefit from or even need all of the TMCN-partners for their daily work? More precisely, are particularly the various private partners active in some TMCNs of help in the development of local climate policies, what is their agenda and how influential are they?

ii) National versus transnational?

The dynamics of global environmental governance and the vital role of the local level in it has been widely discussed (see Barber, 2013; Sassen, 2013). Especially when referring to scholars like Barber or Sassen one might get the impression that we are witnessing an (almost epic) on-going struggle between nation-states on the one and local governments on the other side. However, who says they have to be antagonists? Indeed, Le Galès (2002) and Bäck et al. (2006) demonstrated that for instance, several European nation-states have strengthened the importance of the local level within their national frameworks in the past decades. Moreover, the interviews with local policymakers showed that the reality is way more complex than rhetoric like “dysfunctional nations, rising cities” (Barber, 2013) or “national governments debate and dither. Cities act, cities do” (Bruce Katz cited in Barlett, 2017). Indeed, the reality of local climate change policy implementation is very variegated. Among others, this includes differences in the allocation of policies between the national and local level, the significance of the regional level or the existence or non-existence of national (funding) policies. These variables as well as their interplay all vary from country to country and directly affect the implementation of local climate policies. The key message is that it is all about the question of how the implementation of local climate policies is ensured in the most effective way. It does not matter if this is the result of national efforts to support local climate action or local governments joining together in TMCNs or a mix of both.

The empirical findings of article 2 and 3 demonstrated that, despite being active in TMCNs, national peer networks and national frameworks still matter a lot for local climate governance. At the same time, the findings also showed that not every issue related to local climate action could effectively be tackled through transnational collaboration. Indeed, getting in touch with and learning from

peers from abroad also requires more time for understanding each other's context before being able to assess the adoption potential of an idea or a policy. Moreover, the local level is composed of very different entities reaching from small towns to metropolises or large city regions. Not every local entity has the resources (e.g. time and staff) to engage in transnational collaboration. Then again, local climate action should not be restricted to larger or more internationalised cities. Overall, TMCNs, nation-states and the local level itself have to find ways to preferably represent all kinds of local entities and support them in their climate actions.

In sum, while transnational collaboration can clearly help to broaden the horizon of local policymakers they are also still bonded to their national frameworks. In the end, this applies to both, the small town and the highly internationalised global city.

iii) How should learning be studied and performed in the future?

The necessity of local governments worldwide to respond to the challenges resulting from the impacts of climate change has been widely discussed. This thesis has pointed to learning between local policymakers as one key way to facilitate this process. It could be demonstrated that TMCNs increasingly connect local governments that face similar adaptation challenges to each other for collaboration and C2CL exchanges. It was argued that local governments needed to search for solutions that proved to work elsewhere. In this regard, I am always reminded of an interview with a local policymaker who emphasised that it was better to look first for municipalities that already had good examples since “you don't want to reinvent the wheel.”

The literature on policy learning and much more the one on policy mobilities provide relatively little guidance to researchers on how to study and assess policy learning exchanges. The suggestions of Kemp and Wehuizen (2005) to carefully look at the relationship between policy learning and policy change or adoption and to distinguish different forms of learning (conceptual, social and technical) go in the right direction. Indeed, they help to systemise and order the interview data and give guidance on what to center the attention when examining C2CL exchanges. However, this approach needs to be further elaborated on and further specified. For instance, what should be the variables to examine when exploring the relations between policy learning and policy change or adoption? In this regard, the findings of this thesis and the insights of the policy mobilities literature (see Fisher, 2014; Stead and Pojani, 2018) suggest that a certain homogeneity with regards to the cultural and institutional context or the size of the municipalities engaging in learning exchanges play a key role for policy change or adoption.

The aim cannot be to develop a panacea framework providing universal guidance on how to undertake and study C2CL. Indeed, as demonstrated by the findings of this thesis, many learning exchanges between local policymakers can

be characterised by a certain degree of informality and the desire of many stakeholders to establish and maintain peer relations based on mutual trust. This and the described significance of contextual particularities for successful learning exchanges strongly suggest that a silver bullet framework for C2CL cannot be developed. However, given the described urgency of local governments to learn from each other in order to adapt to climate change, we definitely need to gain a better understanding of how C2CL should be performed in the “best” way possible. Indeed, the high significance and potential of C2CL for practitioners cannot be overstated. For instance, what is urgently needed is more in-depth and consolidated evidence on the key obstacles and enhancers for C2CL.

iv) A call for more qualitative research

The analysis of TMCNs that relied on official information provided by the examined organisations as done in Article 1 had clear limitations. While the findings of the paper offered a better understanding of the TMCN’s institutional architecture and clearly distinguished different types of networks, the chosen approach only provided us with a relatively limited understanding of the concrete influence and significance of the various involved actors (private and public) and the collaboration among each other. Moreover, there is the often-stated lack of evidence for the TMCNs effectiveness and impacts on the ground (Bulkeley, 2010; Fünfgeld, 2015; Busch et al., 2018) that probably remains the main undiscovered puzzle piece in the research on TMCNs and local climate governance.

Looking at the twinning exchanges examined in Article 3, these have never been studied before and the only accessible material consists of the official twinning reports. In general, study visits are increasingly being studied using qualitative methods such as interviews with tour participants. Yet in the field of climate change, this thesis provides us with the first qualitative analysis of them. However, in recent years – also in the field of climate change – they have enjoyed growing popularity among local policymakers. Consequently, the presented work should just be the beginning of the necessary on-going (preferably qualitative) research on study visits in the field of climate change.

These points taken together clearly demonstrate that a new chapter in the research of TMCNs and transnational C2CL needs to be opened. More precisely, what is urgently required is an intensification and extension of qualitative research in order to better understand the functioning of TMCNs and the learning processes taking place within them. At first, there is a need for more expert interviews with key actors active in TMCNs to which this thesis has made a first contribution. Furthermore, in order to broaden the perspective, researchers also need to start studying TMCNs from the inside and not only from the perspective of an external and uninvolved observer, as mainly done in the past and in this thesis. A very promising approach to entering such a new research pathway would be the study of TMCNs by means of methods of

organisational ethnography (see Ybema et al., 2009). Surely, there are clear limitations of qualitative research, such as the possible partiality or secrecy of the interviewees. Nevertheless, a critical use of a mix of qualitative methods still provides us with the by far most promising approach to study learning exchanges among individuals such as policymakers.

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ANNEXES

ANNEX A: GUIDED INTERVIEWS FOR ARTICLE 2

Guideline questions asked to all local policymakers

1. The most pressing climate change-related challenges [...municipality name...] are facing are [...list the challenges...]. What are the root causes of these challenges and how does your local government tackle them?

Explanation: through online desk research prior to the interview the key climate change-related challenges of the surveyed municipalities were identified. The main purpose of this question was to start the interview with an “easy” question for the interviewee and to demonstrate that I had informed myself about the municipality the interviewee represented.

2. Apart from [...list all TMCNs the municipality is a member of...], which further climate change or resilience-related national and transnational municipal climate networks (e.g. 100 RC or ICLEI) did your municipality join?

Explanation: through online desk research prior to the interview the memberships of the surveyed municipalities were identified.

3. What were the key motives of [...municipality name...] to join a TMCN?

4. Can you name and if applicable explain one or more positive outcomes of knowledge sharing or learning exchanges with peers from other local governments that resulted due to the membership in a TMCN?

5. Can you name specific tools provided by TMCNs that facilitated knowledge sharing or learning exchanges with other local governments and if yes, as how helpful did you perceive them with regards to enabling knowledge sharing or learning?

6. What are the biggest obstacles for knowledge sharing and learning with other local governments?

7. What are your recommendations for improving knowledge sharing and learning exchanges? How could TMCNs improve the facilitation of these exchanges?

Guideline questions asked to all TMCN-representatives

1. How important are knowledge sharing and learning among the members within [...TMCN name...]? Would you say it is a priority?

2. Does [...TMCN name...] connect members that face similar climate change-related challenges or work on similar topics, and if yes how do you do it?

3. Apart from [...list all programs and tools...], does [...TMCN name...] offer specific programs or tools to support or facilitate the sharing of knowledge and learning among its members?

Explanation: through online desk research prior to the interview the tools or programs were identified.

4. In your opinion and experience, which of the mentioned tools or programmes are the most effective or valuable ones with regards to facilitating knowledge and learning exchanges among your members?
5. In what kind of knowledge are your members particularly interested (e.g. scientific, technical or practical knowledge, best practices)?
6. What are the biggest obstacles for knowledge sharing and learning among local governments?
7. What are your recommendations for improving knowledge and learning exchanges among your members? What could you “do better” and what could your members “do better”?
8. What are your experiences with collaboration or coordination with other TMCNs? Is it taking place among [...*TMCN name*...] and other TMCNs? Is it an option for the future?

ANNEX B: GUIDED INTERVIEWS FOR ARTICLE 3

Guideline questions asked to all local policymakers representing a mentor municipality

1. What were the key motives of [...*municipality name*...] to apply for participation in the Twinning Programme? Was it the outcome of some form of strategic thinking?
2. How and by whom was your twinning partner [...*learning municipality name*...] selected? By EUROCITIES? Could you express preferences concerning the selection of the twinning partner and did you specifically apply for participation as a mentor municipality?
3. Are there people in your municipal administration who focus on international networking, for instance by transferring relations to specialised branches of the local government?
4. Did you or your municipal administration regard the twinning as an opportunity to support your local businesses, for instance by creating markets for local companies?
5. Through the exchange with [...*learning municipality name*...] you provide your solutions and experiences 'for free' to a learning municipality. Some might say this could have also been done through paid consultancy. What were the reasons that you did you decide not 'to sell' your experiences and solutions?
6. The twinning exchange was not limited to municipal policymakers from [...*municipality name*...] and [...*learning municipality name*...]. Apart from your colleagues from [...*learning municipality name*...] there were further stakeholders involved, such as representatives of [...*name(s) of the organisation(s)*...]. How and why did you select them to attend and contribute to the visit?

Explanation: through online desk research prior to the interview all twinning participants were identified. All participants were listed in the twinning report.
7. How regularly did you exchange knowledge and information with your peers from [...*learning municipality name*...] and in which forms did it most commonly take place (e.g. in-person meetings, phone or Skype conferences, via email)?
8. As how extensive or deep in content would you describe the exchange with [...*learning municipality name*...]?
9. Were you as the mentor municipality also able to learn something from the learning municipality, in general but also with regards to your work on local climate change adaptation and mitigation?
10. Did the collaboration with [...*learning municipality name*...] continue after the twinning? Are you still in touch?
11. Do you have suggestions how EUROCITIES could improve future twinings?

Guideline questions asked to all local policymakers representing a learning municipality

1. What were the key motives of [...municipality name...] to apply for participation in the Twinning Programme? Was it the outcome of some form of strategic thinking?
2. How and by whom was your twinning partner [...mentoring municipality name...] selected? By EUROCITIES? Could you express preferences concerning the selection of the twinning partner and did you specifically apply for participation as a learning municipality?
3. Are there people in your municipal administration who focus on international networking, for instance by transferring relations to specialised branches of the local government?
4. Were you involved in the setting up of the program of the visit to [... mentoring municipality name...]? For instance, could you express preferences about specific themes to be covered or places to be visited?
5. The twinning exchange was not limited to municipal policymakers from [...municipality name...] and [...mentoring municipality name...]. Apart from your colleagues from [...mentoring municipality name...] there were further stakeholders involved, such as representatives of [...name(s) of the organisation(s)...]. Did you have the opportunity to have in-depth discussions with some of these additional twinning participants (prior to the visit, during the visit or after the visit)?
6. Eventually, did you decide to adopt policies or measures that you learned about from [...mentoring municipality name...]?

Explanation: this was a filter question.

7. How was the policy or measure received by your municipal administration?

Explanation: this question was only asked if the interviewee answered the previous filter question with a 'yes'.

7. What were the reasons for deciding against adopting policies or measures that you learned about from [...mentoring municipality name...]?

Explanation: this question was asked if the interviewee answered the previous filter question with a 'no'.

8. As a learning municipality, do you feel you were also able to 'teach' something to the mentor municipality, in general but also with regards to your work on local climate change adaptation and mitigation?

9. Did the collaboration with [...mentoring municipality name...] continue after the twinning? Are you still in touch?

10. Do you have suggestions how EUROCITIES could improve future twinings?

Guideline questions asked to all local policymakers representing a peer learning municipality

1. What were the key motives of [...municipality name...] to apply for participation in the Twinning Programme? Was it the outcome of some form of strategic thinking?
2. How and by whom was your twinning partner [...peer learning municipality name...] selected? By EUROCITIES? Could you express preferences concerning the selection of the twinning partner and did you specifically apply for participation as a peer learning municipality?
3. Are there people in your municipal administration who focus on international networking, for instance by transferring relations to specialised branches of the local government?
4. Were you involved in the setting up of the program of the visit to [...peer learning municipality name...]? For instance, could you express preferences about specific themes to be covered or places to be visited?

Explanation: this question was asked to the representatives of a visiting peer learning municipality.

5. The twinning exchange was not limited to municipal policymakers from [...municipality name...] and [...peer learning municipality name...]. Apart from your colleagues from [...peer learning municipality name...] there were further stakeholders involved, such as representatives of [...name(s) of the organisation(s)...]. Did you have the opportunity to have in-depth discussions with some of these additional twinning participants (prior to the visit, during the visit or after the visit)?

Explanation: this question was asked to the representatives of a hosting peer learning municipality.

6. Eventually, did you decide to adopt policies or measures that you learned about from [...peer learning municipality name...]?

Explanation: this was a filter question.

7. How was the policy or measure received by your municipal administration?

Explanation: this question was asked if the interviewee answered the previous filter question with a 'yes'.

8. What were the reasons for deciding against adopting policies or measures that you learned about from [...peer learning municipality name...]?

Explanation: this question was asked if the interviewee answered the previous filter question with a 'no'.

9. Did the collaboration with [...peer learning municipality name...] continue after the twinning? Are you still in touch?

10. Do you have suggestions how EUROCITIES could improve future twinings?

Guideline questions asked to the representative of EUROCITIES

1. Why was the Twinning Programme set up? Who had the idea? Please tell us a bit about the origins.
2. Why is a program of Mayors Adapt, now the Covenant of Mayors, managed by EUROCITIES? What is the connection between EUROCITIES and the Covenant of Mayors? How are you collaborating?
3. In the beginning, the Twinning Programme was limited to exchanges between learning and mentor municipalities. Later on, the program was expanded to peer-learning exchanges. What were the reasons for this expansion and, in your experience, which model works better and why?
4. How does EUROCITIES connect municipalities to each other? Which criteria are used to decide that municipality 'A' should work with municipality 'B'?
5. Some exchanges included municipalities with rather similar profiles and capacities (e.g. Antwerp - Copenhagen) while others were between quite different partners (e.g. Barcelona - Chania): How do you deal with differences in capacities and local contexts?
6. There are many exchanges among municipalities from Southern and Northern Europe. Besides, there are also two exchanges among municipalities from the 'old' Western Europe and post-socialist countries. However, there is not one single twinning between a Northern and a Southern European municipality. What are the reasons for this?
7. It is outlined that the programme aim is to trigger a two-way traffic of knowledge exchange and learning between the mentoring and the learning municipality? In your opinion and experience: what can a mentor learn from a learner?
8. What are the most common obstacles municipalities are facing when they try to adopt policies or measures they had learned about through the twinings?
9. Do you evaluate or assess the twinning exchange outcomes, for instance by "measuring" its success or effectiveness?