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Sustainability · Strategy · Space

- exploring influences on governing for urban sustainability in municipalities

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Abstract

The pursuit of urban sustainability is considered central to sustainable development and is a key objective of the global Sustainable Development Goals (2015) and the New Urban Agenda (2016). This thesis aims to contribute to debates on urban sustainability by providing insights as to the role of actors participating in processes of governing for urban sustainability, with particular focus on the municipal organisation.

The thesis employs an interdisciplinary approach to illustrate divergent approaches to governing for urban sustainability, with reference to empirical studies of strategic planning processes in municipalities in selected North-western European countries – Sweden, Switzerland and The Netherlands.

These studies address themes including climate change, sustainable transport and multi-level governance. The thesis provides a broad overview of theoretical discussions related to governing, strategy and planning, the role of actors in governing for urban sustainability, and the particular importance of climate change as a challenge for urban sustainability.

A number of research gaps are identified and addressed in two research questions, focusing on the organisation and practice of processes of governing for urban sustainability, and the factors influencing actors participating in such processes. The thesis responds to these research questions with reference to five appended papers, which illustrate different dimensions of governing for urban sustainability.

The first paper concerns the *organisation* of processes to develop energy and climate strategies in Swedish municipalities, and the second paper highlights the *experiences* of actors participating in such processes. The third paper presents results from a survey illustrating the *expectations* of stakeholders active in governing transport in the city of Norrköping, Sweden.

In the fourth paper, the development and *implementation* of policies aiming for sustainable transport and urban sustainability in Basel, Switzerland, are discussed. In the final paper, *cooperation* through transnational municipal networks is explored with reference to the World Ports Climate Declaration, an initiative of the city of Rotterdam.

The thesis confirms the presence of five factors – *capacity*, *mandate*, *resources*, *scope* and *will* – that shape the “strategy space” of actors and play an important role in conditioning the form and content of processes of governing for urban sustainability. The thesis suggests that the ways in which a municipal organisation perceive and mobilise the five factors will strongly determine the extent of its sustainability strategy space.

In sum, municipal organisations and other actors participating in processes of governing for urban sustainability need to mobilise the five factors and expand their strategy space, in order to achieve vertical and horizontal alignment of strategic objectives and facilitate implementation that delivers transformative change.

Populärvetenskaplig sammanfattning

Hållbar stadsutveckling är nödvändig för hållbar utveckling och prioriteras i bl.a. FN:s globala hållbarhetsmål samt den s.k. New Urban Agenda. Denna avhandling bidrar till både forskning och praktik genom att belysa aktörernas roll i lokal styrning och lokala processer som syftar till hållbar stadsutveckling. Kommunorganisationen sätts i särskilt fokus.

Hållbar stadsutveckling är mångfacetterad och avhandlingens förhållningssätt är därför interdisciplinärt. Avhandlingen baseras på empiriska studier i städer från flera europeiska länder, nämligen Nederländerna, Schweiz, och Sverige. Dessa presenterar fallstudier om strategisk planering för hållbar stadsutveckling och teman såsom klimatförändring, transporter och flernivåstyrning.

Avhandlingen bidrar med en översikt av teoretiska perspektiv kopplat till styrning, strategi och planering, och aktörernas roll i hållbar stadsutveckling. Flera kunskapsluckor identifieras, varav några besvaras genom två forskningsfrågor som fokuserar på hur styrningsprocesser för hållbar stadsutveckling organiseras och implementeras, samt vilka faktorer som påverkar de deltagande aktörerna inom ramen för sådana processer.

Dessa frågor besvaras utifrån analyserna i de fem bifogade artiklarna. Artiklarna illustrerar olika aspekter av styrning för hållbar stadsutveckling. I den första artikeln är organisationen av styrningsprocesser i de studerade svenska kommunernas strategiska energi- och klimatplanering huvudfokus, medan i den andra belyses deltagande aktörers erfarenheter i dessa processer. I den tredje artikeln presenteras en enkätstudie om aktörernas förväntningar med hänsyn till styrning av hållbara transporter i Norrköping.

Den fjärde artikeln sätter fokus på staden Basel i Schweiz, genom att diskutera utveckling och genomförande av strategier och politik för hållbara transporter och hållbar stadsutveckling. I den sista artikeln är kommunernas samverkan genom internationella kommunnätverk i fokus, med referens till ett initiativ av Rotterdams stad som syftade till minskad klimat- och miljöpåverkan inom hamnar och sjöfartssektorn.

Avhandlingen bekräftar att fem faktorer – *kapacitet, mandat, omfattning, resurser* och *vilja* – är viktiga och utformar aktörernas strate-

giska handlingsutrymme för hållbar stadsutveckling. Därmed påverkar dessa faktorer styrningens karaktär och innehåll. Variationer i hur kommunorganisationerna tolkar och mobiliserar de fem faktorerna avgör hur stort handlingsutrymmet blir.

Därför finns ett behov för kommunorganisationer och andra aktörer att proaktivt ta hänsyn till de fem faktorerna och utöka sitt strategiska handlingsutrymme. Detta för att kunna säkerställa integreringen av strategiska mål inom flernivåstyrning och underlätta implementeringen av strategier för hållbar stadsutveckling.

Preface

This Ph.D. thesis is the product of approximately four years of full-time research and institutional duties spread over five years, which can be broadly divided into two periods. In the following passages I will outline the general context framing my studies and thinking, and my motivation for conducting these studies. I will then describe my research journey during the two periods, and thank a range of people who have influenced my learning and life.

By doing so, I hope to provide some insights into the *why*, *how* and *who* of my Ph.D. studies, whilst leaving most of the what to the chapters that follow. In other words, *why* have I chosen to conduct Ph.D. studies, *how* has my research journey developed, and *who* has contributed to that journey? I begin with a short overview of two issues which have dominated my professional life to date – sustainable development and the closely related topic of climate change.

Sustainable development and climate change: governing from the global to local

The adoption of 17 global sustainable development goals by the countries of the world (UN, 2015) underlines the importance of the sustainable development agenda. For the purposes of this thesis, it is sufficient to define sustainable development as having what Rydin (2010:2) calls the “quite clear and precise meaning” of the definition used in the Brundtland Report – development that “meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987:8).

This definition addresses contemporary economic, environmental and social concerns, whilst implying that the failure to balance inter-generational interests represents unsustainable development. In recent decades, evidence of unsustainable development has been observed on multiple scales and in many contexts (Crutzen and Stoermer, 2000; Levidow and Oreszczyn, 2012; UN-Habitat, 2011).

An enormous body of literature explores the implications of unsustainable development and possible pathways towards more sustainable forms of development (Sauer, 2016). Concepts such as “planetary boundaries” have emerged as influential devices framing and shaping debates (Rockström et al., 2009) and sustainable development goals

have been developed and codified in international agreements (UN 2015; WCED 1987).

Sustainable development is thus multi-faceted and anthropocentric (Kopnina, 2016). It is the combination of human development patterns that collectively interact to cause unsustainable development. Industrialism, urbanisation and rapid population growth are often among the drivers of unsustainable development (Connelly, 2007; Jacobs, 1999). Moreover, sustainable development has important temporal implications for policy-makers, and in broader terms, societies (Griggs et al., 2013).

The need to balance the interests of generations implies a need to make compromises that trade off short-term interests in favour of long-term interests (Shaw et al., 2014). In a strict sense of the definition, human actions that result in detrimental impacts on the future environment should be urgently minimised; resources should be consumed at a level that provides equitable access for future generations (whilst taking into account future increases in population); and development should permit flexibility, in order that one generation is not constrained by another's planning (i.e. we should try not to “‘cement’ the future” (Holzapfel, 2015:74)).

However, circumstances – and the human mind – often constrain the ability of individuals to make judgements concerning long-term issues and lead to contradictory or incongruent outcomes (Kahneman, 2011). Partly for such reasons, the extent to which sustainable development is possible and practiced is contested and continually reassessed (Davidson and Gleeson, 2014; Harris and Moore, 2015).

For example, at the planetary scale, there are ongoing debates concerning the implications of human impacts on the Earth System (Crutzen and Stoermer, 2000; Ganopolski et al., 2016; Waters et al., 2016). Such debates highlight uncertainties and confusion concerning the boundaries of different disciplines and illustrate the need for interdisciplinary approaches to solve complex problems (Brondizio et al., 2016; Hamilton, 2015).

In simple terms, humanity has practiced a form of carbon-intensive unsustainable development that has driven significant, and effectively irreversible, impacts on the Earth System (Hamilton, 2015:105-6). Climate change governance thus emerges as a central challenge of sustainable development, although by no means exclusively; the emission

of greenhouse gases through carbon-intensive energy consumption is just one way of exemplifying unsustainable development, with environmental degradation, poverty and resource extraction among the many others (Baer, 2013; Brondizio et al., 2016; Griggs et al., 2013).

Climate change governance may contribute towards mitigating or adapting to immediate impacts of this epoch-defining challenge, and – perhaps – limiting the intensity of future impacts (Baer, 2013). This underlines the centrality of the inter-generational perspective to both the concept of sustainable development and discussions of climate change. Indeed, this perspective features prominently in the global climate negotiations, intertwined as it is with questions of causation and historical responsibility, which in turn influence target-setting, carbon finance, technology transfer and more (Nasiritousi, 2016).

The contours of such debates – and the bargains they result in – influence events on the ground in myriad ways and vary across contexts. Specific targets have been adopted to mitigate climate change, yet such targets do not apply to all contexts at all times. For example, “developed” countries, historically carbon-intensive, have different treaty obligations under both the Kyoto Protocol and the recent Paris Agreement than “developing” countries (UNFCCC, 2015).

Sectors such as international aviation and shipping remain, despite their inclusion in preliminary drafts, formally outside of the Paris Agreement. As such, no binding global targets exist for these sectors and climate action is diffused to the regional, national and sub-national levels, often occurring on a voluntary basis (Bows-Larkin, 2015; Jeffries, 2016; UNFCCC, 2015). My personal involvement in one such initiative, the World Ports Climate Initiative, is the topic of Paper 5 of this thesis, and my experiences working with municipalities in networks and as a consultant have no doubt influenced my ideas and perspectives during these five years of research.

At the sub-national level, the role of cities and other human settlements in governing for sustainable development and climate change is increasingly recognised. Indeed, Sustainable Development Goal 11 explicitly focuses on the challenge of transforming human settlements to become inclusive, safe, resilient and sustainable (UN, 2015; see also UN-Habitat (2016) on Goal 11 and the New Urban Agenda).

To facilitate implementation of Goal 11, the UN propose adoption of strategies and plans by municipal organisations and other urban

stakeholders to promote and enable for example climate change mitigation and adaptation, sustainable transportation and urban sustainability. Nevertheless, it remains to be seen if cities are capable of rising to this challenge; recent analysis suggests that sub-national action on climate change is perhaps characterised more by hot air than measured commitments or achievement (Bansard et al., 2016).

My thesis

This background provides the general context informing my Ph.D. studies and this thesis, which offers insights into the role of municipal organisations in governing for urban sustainability and climate change, and the factors influencing municipal organisations within such governing processes.

As the preceding discussion indicates, the need for urgent and radical transformations towards sustainable development is widely-recognised. Moreover, it is clear that those with a historical responsibility and/or the means to act in favour of sustainable development – such as the residents of North-western Europe¹ – must do so, as rapidly and comprehensively as possible.

Having spent most of my professional life working on issues related to urban sustainability and climate change, I am acutely conscious of the complexity of these challenges, as well as the inadequacy of most efforts to address them (these issues are discussed in more detail in section 1.1.).

However, as much as these profound issues stimulate my interest and intellectual curiosity, it remains difficult to see how I may contribute towards their amelioration or resolution. I am probably not alone in this regard, a point which perhaps indicates one reason why things are the way they are.

¹ “Northern and Western Europe” may be a more specific term, yet for the purposes of brevity, North-western Europe will be used throughout the thesis. North-western Europe implies countries located in the UN Northern and Western European classifications (<http://unstats.un.org/unsd/methods/m49/m49regin.htm#europe>) and thereby includes the countries studied in this thesis (Sweden, Switzerland, The Netherlands) and others addressed in the Ph.D. project (Denmark, Germany).

Nevertheless, despite my strong feeling that humanity must act in a bolder, more comprehensive and rapid way to address sustainable development and climate change, I have within the course of my Ph.D. studies and in this thesis preferred not to focus on the relative “performance” of efforts to address urban sustainability and climate change, but rather on the process of addressing these challenges and the actors involved.

This focus has enabled me to assess how governing processes are developed and organised, the factors influencing participants in such processes, and the implications of these issues on outcomes, i.e. the strategies and policies that are to be implemented.

By doing so, I hope my research findings may help practitioners think more strategically about how to develop and organise processes, whilst maximising their potential role in such processes. I have no expectation that this thesis will change the world to the extent that other studies suggest is necessary; nevertheless, I harbour a small hope that somewhere, this thesis may help make a small contribution towards the achievement of a more sustainable future.

The research journey

In practical terms, my research has emerged during the past five years into the body of work presented in this thesis. As noted above, the research comprises two periods of work. The first period (September 2011 – June 2014) included a slow transition to the world of academia followed by the completion of the majority of courses related to my research education. These provided important opportunities to sketch and frame ideas which have subsequently been developed into articles or other publications.

During most of this period, my research was closely linked to two projects – Sustainable Climate and Energy Strategies (see Papers 1-2) and Sustainable Norrköping (see Paper 3 and McGuinness, 2014:139-141) – and two main themes, energy and climate planning and municipal transport strategies. Each of these projects was underway when my Ph.D. studies commenced, meaning my role was, in each case, reasonably well-defined.

My main achievements during this period were the completion of a Licentiate thesis (Fenton, 2014a) and the presentation of research at six international conferences or workshops. In 2012, general findings from

the Sustainable Climate and Energy Strategies project were presented at the 3rd International Urban Research Symposium during the ICLEI World Congress in Belo Horizonte, Brazil. A conference paper containing specific results from the project, subsequently developed in Paper 1, was then presented at the Greening of Industry Network conference in Linköping.

The project findings were also published in two technical reports sent to the Swedish Energy Agency (Fenton et al., 2012; Gustafsson et al., 2013) and Paper 2 was drafted. Submitted versions of Papers 1-2 were included in my Licentiate thesis, along with a literature review that was presented at a Ph.D. workshop at Columbia University, USA.

The Licentiate thesis synthesised the findings of these three papers and presented a conceptual framework for understanding influences on processes of governing for urban sustainability – the five factors (Fenton, 2014a). Parts of the Licentiate thesis cover essay and the literature review have been used to provide input to the cover essay of this thesis.

In 2013, I wrote a course paper containing results from Sustainable Norrköping. This formed the basis for a conference presentation at the 2014 Tyndall Ph.D. Conference in Manchester, UK. This work was subsequently published as Paper 3. Additionally, in June 2014, I presented a conference paper to the Shipping for Changing Climates conference in Liverpool, UK, organised by the Tyndall Centre. This paper began life as a course essay and was subsequently developed into Paper 5 of this thesis.

During spring 2014, I applied for, and was awarded, several research grants for the Sustainable Mobility research project. Following parental leave, my research in the second period (January 2015 – October 2016) has focused on this project, finalising publications and preparing the Ph.D. thesis.

Sustainable Mobility develops ideas that originated during the Sustainable Norrköping project and the preparation of Paper 3. The research project involves qualitative studies of governing for sustainable mobility in the cities of Basel, Switzerland; Göttingen, Germany; and Odense, Denmark.

The basic methodology for this project is described in Paper 4, and field work was carried out in spring 2015. Results from the project have been presented at national conferences on transport research and two

articles (Paper 4 and Fenton and Kanda, 2016) have been published. Several other publications are under development and the project has been extended to consider 13 Swedish municipalities with populations of 100,000-200,000 inhabitants.

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List of appended papers

- Paper 1. P. Fenton, S. Gustafsson, J. Ivner, J. Palm, 2015. Sustainable energy and climate strategies: lessons from planning processes in five Swedish municipalities. *Journal of Cleaner Production*, 98: 213-221.
- DOI: 10.1016/j.jclepro.2014.08.001
- Paper 2. P. Fenton, S. Gustafsson, J. Ivner, J. Palm, 2016. Stakeholder participation in municipal energy and climate planning – experiences from Sweden. *Local Environment*, 21(3): 272-289.
- DOI: 10.1080/13549839.2014.946400
- Paper 3. P. Fenton, S. Gustafsson, 2015. Contesting sustainability in urban transport – perspectives from a Swedish town. *Natural Resources Forum*, 39(1): 15-26.
- DOI: 10.1111/14778947.12061
- Paper 4. P. Fenton, 2016. Sustainable mobility as Swiss cheese? – exploring strategies for urban transport in Basel. *Natural Resources Forum* (in press).
- DOI: 10.1111/1477-8947.12093
- Paper 5. P. Fenton, 2015. The role of port cities and transnational municipal networks in efforts to reduce greenhouse gas emissions on land and at sea from shipping – an assessment of the World Ports Climate Initiative. *Marine Policy* (in press).
- DOI: 10.1016/j.marpol.2015.12.012

1. Introduction

This chapter introduces the research topic of this thesis and briefly discusses its relevance for science and society. In the following section, the context framing the thesis is discussed, along with some ways that conceptual debates are directly related to political and societal processes. The Research Questions that the thesis responds to, along with the approach used, are then presented, providing an overview of the purpose, form and structure of the thesis.

1.1. Governing sustainability and climate change in human settlements

Profound and diverse changes are required if ambitions, objectives and targets addressing sustainable development and climate change are to be met (Lange et al., 2013). Such changes will have significant implications for human activities irrespective of location, yet as the global population increases, humans have increasingly moved to and reside in urban areas². The pre-emption, prevention and resolution of sustainable development challenges in urban contexts will thus play a significant role in shaping the environment and opportunities of future generations (UN, 2015).

A multitude of actors, representing different sectors and interests and operating at the local, regional, national and international levels, are prominent in advocating and claiming to pursue urban sustainability. The concept of urban sustainability is, however, interpreted variously across, between and within contexts. Some authors consider the concept of urban sustainability as a paradox, oxymoron or chimera (McManus, 2012; Trisolini and Zasloff, 2009).

There are no universally-accepted definitions of urban sustainability or sustainable urban development (Emilsson and Hjelm, 2009; West 2010). However, Rydin (2010:10-11) identifies three key aspects of urban sustainability:

² Whilst demographic trends and urbanisation are entangled, they are also easily conflated and sometimes assumed to be interdependent. It is possible to envisage other development pathways that disentangle these trends and enable population growth across settlement types, yet this question lies far beyond the scope of this thesis. Baer (2013) and other authors address such issues in part or full.

- (1) “the extent to which activities within urban areas contribute to unsustainable outcomes”;
- (2) “the possibilities of using urban areas to render economic development more sustainable”;
- (3) “using the urban level of governance to pursue action for sustainability and to demonstrate commitment to the sustainable development agenda”.

This framing of urban sustainability is subsumed within the overall definition of sustainable development provided by WCED (1987), yet also accounts for institutional factors and emphasises that “government needs to work in a different way to deliver sustainable development” (Rydin, 2010:3-4). This appears particularly important in urban settings, where a variety of strong institutional actors and stakeholders are typically present (UNDESA, 2013).

Indeed, the links between administrative, cultural, institutional, and political dynamics, and economic, environmental and social systems, are considered central to urban sustainability (Arnott, 2012; UN-Habitat, 2011). The pursuit of institutional arrangements and governing processes that support increases in urban sustainability is a key challenge of sustainable development (UN, 2010; UN-Habitat, 2011).

In broader terms, urban sustainability emphasises the interrelationship between human settlements and sustainable development on multiple scales. Urban sustainability appears at once abstract and complex, leading some to argue that new forms of practice are necessary if “anthropogenic drivers that form the technical, cultural, institutional, economic, and psychological fabric of cities” are to be understood and harnessed in favour of urban sustainability (Chester et al., 2012:455).

Scale provides one clear illustration of such a challenge, as attempts to pursue urban sustainability in specific urban contexts risk ignoring both visible and hidden impacts outside of the urban area in focus. Territorial boundaries, defined and imposed by humans, delimit the scope of urban sustainability in narrow, restrictive, static and simplistic terms and neglect non-territorial impacts (Seitzinger et al., 2012; Seto et al., 2012).

Similarly, benchmarking through city indexes or similar indicator sets may lead to relativistic comparisons with past or present performance or between peers, frequently in relation to targets specified in policy documents or subjective definitions of success/failure, yet pro-

vide little indication of performance in relation to scientific recommendations concerning thresholds such as “planetary boundaries” (although Hoornweg et al. (2015) propose a method for doing so; cf. Ceron Castano and Wadley, 2012; McCann and Ward, 2015; Mori and Christodoulou, 2012; Rockström et al., 2009).

Whilst sustainable development is increasingly understood as a transboundary and inter-generational challenge that should be defined in relation to particular thresholds, urban sustainability is mainly used in relativistic terms and addresses, by definition, striated space. This is deeply problematic, as local achievements within the striated space of a municipality’s geographic zone are largely “meaningless if all countries are on unsustainable trajectories” (Mori and Christodoulou, 2012: 104), yet accounting for impacts outside of the geographic zone is highly complex.

The challenge of achieving what ideally should occur and what may be deemed necessary is thus mitigated by constraints that are influential in determining what actually happens (Barrutia et al., 2015). In this context, authors including Barnett and Parnell (2016), Kaushal and Belt (2012), Newell et al. (2012), Schandl et al. (2012), and Turcu (2012) call for a re-conceptualisation of urban sustainability to increase understanding about the dynamic and multi-dimensional impacts of human settlements.

These criticisms underline the need to be careful and precise concerning the focus of this thesis, which aims to avoid making assessments concerning the relative performance of different cities or approaches aiming for sustainable development outcomes (if indeed this is possible; cf. Jänicke and Weidner, 1995³). Rather, the thesis examines the process of governing for urban sustainability in different North-western European urban contexts, focusing on the organisation

³ Referring to “three general categories of systematic environmental policy evaluation: (1) outcomes, (2) processes, and (3) institutions (Bartlett, 1994)”, Jänicke and Weidner (1995:13) choose to focus on the study of outcomes, providing a definition of outcomes, improvement and (relative) success. They argue that “success in environmental policy... is influenced by at least the following factors: (a) *structures*, (b) *situations*, (c) *actors*, (d) *strategies* and (e) *time*”. These factors can indicate e.g. the cultural, social and institutional context; the specificity of that context (i.e. the moment) and the temporal implications of policies, etc.; the stakeholders involved whose “capacity for action depends on resources”; and, the content of strategies (Ibid: 16-17).

of strategic planning processes and the role of actors participating in such processes. According to Barrutia et al. (2015:595):

“Strategic planning refers to an ordered sequence of activities which include strategic analysis, policy formulation, implementation, and evaluation.”

Such activities address long-term visions and offer the possibility for municipal organisations to involve diverse stakeholders in the planning, implementation and evaluation of strategic objectives (Ibid). This thesis examines if and how this is done, and explores the influences on actors as they participate in strategic planning processes. By doing so, the thesis provides insights into the implications of varying forms of organisation and practice on governing for urban sustainability.

This topic is important as, although there is general consensus in scientific literature concerning the existence of undesirable pathways that should be avoided (e.g. increased use of fossil fuels), the scale, pace and character of the changes required to increase levels of urban sustainability are the subject of debate (Sauer et al., 2016). Whilst many approaches to achieving sustainable development allude to a need for radical transformations, the predominant forms of practice result in incremental transitions (Pereira et al., 2015; Wittmayer et al., 2015).

Each of these perspectives has significant advantages and disadvantages. For example, radical change may promote rapid achievement of stated objectives, yet (due to its contestation) may be politically or societally difficult to realise. Conversely, incrementalism may be pragmatic or more consensual, yet contains the risk, metaphorically speaking, that the ship sinks whilst the decks are being polished. This thesis will illustrate how varying interpretations of urban sustainability result in diversity, in terms of the content of practice and research.

Studies on urban sustainability encompass different methodological approaches and disciplines ranging from environmental sciences to jurisprudence or microeconomics. To avoid the development of knowledge siloes, an increasing number of studies advocate the use of interdisciplinary approaches in research on urban sustainability (Petts et al., 2008). This thesis focuses on themes – e.g. actors and organisations, governing, strategic planning – that are often associated with political science, management or organisational studies, and urban planning, yet employs an interdisciplinary approach in an attempt to identify findings of significance to readers with diverse backgrounds.

1.2. Aim and Research Questions

This thesis aims to make a specific contribution to the literature on urban sustainability by providing insights into the factors influencing municipal organisations when governing urban sustainability. It also contributes to addressing a number of research gaps highlighted in the Theoretical background (and summarised in section 2.7). To do so, the thesis synthesises findings from empirical studies in selected North-western European countries: Sweden, Switzerland and The Netherlands.

These studies broadly address three research themes, the first of which is *climate change*, with particular focus on municipal processes to develop *sustainable energy and climate plans*. This theme intersects with the second, *sustainable urban mobility* and *sustainable transport* policies and practices, a theme which also addresses renewable energy in transportation. The third research theme is *multi-level governance*, with particular focus on the implications of municipalities' involvement in transnational municipal networks for governance, knowledge, diffusion, and the representation of topics or locations in scientific and grey literature.

Five articles are appended to the thesis (see Chapter 4). These address the three research themes and have been selected due to their focus on different dimensions of governing of urban sustainability. The papers discuss:

- (1) the *organisation* of processes to develop energy and climate strategies in five Swedish municipalities;
- (2) the *experiences* of stakeholders participating in such processes;
- (3) the *expectations* and opinions of stakeholders participating in policy-making processes concerning sustainable mobility and transport in the city of Norrköping, Sweden;
- (4) the *implementation* of contested policies for sustainable mobility and urban sustainability in the “forerunner” city of Basel, Switzerland;
- (5) the city of Rotterdam’s attempt to address complex challenges and solve “first-mover” problems in ports and shipping through international *cooperation* facilitated by transnational municipal networks.

The research themes and dimensions are addressed in two Research Questions (RQs), providing a framework for the synthesis of the thesis project. The RQs are:

RQ1. How are processes of governing for urban sustainability organised and practiced in selected North-western European municipalities?

In different contexts, divergent forms of approaches – in terms of e.g. strategies and methods proposed and used – to governing for urban sustainability are likely to be observed. Processes of governing are typically understood to refer to a spectrum ranging from formal, institutionalised “government” to pluralistic, deliberative and co-creative “governance” (see Section 2.1. and Figure 1).

Figure 1. The spectrum of governing and the role of actors in government and governance. Adapted from Evans et al., 2005, 2006; Hysing, 2009; Lange et al., 2013.

In different contexts or at different times, varying approaches to governing may be considered appropriate. Such variation may influence and be influenced by for example the organisation of processes aiming to increase levels of urban sustainability and their degree of formality; the identity of actors participating in such processes; and the nature of their relationship to the process (Gibbs and Lintz, 2015; Lange et al., 2013).

It is thus important to understand how processes of governing for urban sustainability are organised and practiced in different contexts. This thesis aims to do this by examining the ways in which local processes to develop strategy and policy for urban sustainability are organised in selected North-western European contexts. Papers 1-3 address small-medium sized urban settlements in Sweden, whereas Paper 4 examines a large Swiss city (medium-sized from a European perspec-

tive) in an expansive agglomeration, and Paper 5 presents an initiative emanating from a large city in The Netherlands.

The thesis focuses on the role of local institutional actors, such as municipal organisations, as these are typically central actors in processes of governing for urban sustainability. However, the thesis also considers the extent to which other stakeholders participate and have influence in processes of governing for urban sustainability. The participation of such actors is the focus of RQ2:

RQ2. Which factors influence the participation of actors in governing of strategic planning for urban sustainability?

As noted above, different forms of participation are likely to be observed in divergent approaches to governing for urban sustainability. Approaches emphasising “government” are likely to (mainly) feature institutional actors with formal powers, e.g. municipal organisations, and be characterised by hierarchical (vertical) structural relationships. In contrast, approaches emphasising “governance” are likely to include a diverse range of institutional and/or non-institutional stakeholders, possibly in informal settings, in processes of collaboration.

From the actor’s perspective, the process of governing may be considered to be an opportunity to influence the strategic content of urban sustainability policy. Thus, from a “governing” perspective, the approach used creates a space or window for development of strategy and policy. This must be filled by the participating stakeholders, yet the means of doing so are likely to vary depending on the local context, the organisation of a strategic planning process, and the composition of the group of participating stakeholders.

RQ2 aims to explore the ways in which actors navigate the process of governing in order to use or cultivate such space so as to provide leverage for strategic agendas. RQ2 thus indicates that the varying forms of organisation and practice examined by RQ1 are likely to influence the participation of actors in governing of strategic planning for urban sustainability. However, RQ2 also indicates the presence of factors at the actor-level, which shape and condition their actions and contribution to governing.

Thus, whilst the results of RQ1 are likely to indicate the implications of different approaches at the system-level (i.e. the “landscape” of governing for urban sustainability in which actors find themselves), the

results of RQ2 are likely to be more “operative” from the actor perspective, and provide indications as to how actors may mobilise their organisations and maximise their potential role within processes of governing for urban sustainability.

The links between the RQs are illustrated in Figure 1 and elaborated upon in more detail in the Theoretical background. By responding to these RQs, this thesis attempts to synthesise ideas, concepts and results related to the different research themes and dimensions into a coherent contribution to the literature on urban sustainability.

Table 1 provides an overview of the role and contribution of the different papers to the respective research themes. Each of the five papers can be understood to address RQ1, whereas RQ2 is primarily addressed in Papers 2-4. The reasons motivating the selection of cases are elaborated on in Chapter 4 and the appended papers.

Table 1. The relationship between the papers, RQs, dimensions in focus, themes, and country context of study. MLG denotes multi-level governance.

Country	Paper	Focus	Theme			RQ	
			Climate change	Transport	MLG	1	2
Sweden	1	Organisation	X		X	X	
	2	Experiences	X		X	X	X
	3	Expectations		X		X	X
Switzerland	4	Implementation		X	X	X	X
Netherlands	5	Cooperation	X	X	X	X	

1.3. Approach

This thesis is grounded on a proposition that broadly matches the context described in the Preface and Introduction to this thesis⁴, namely: Unsustainable development is the norm/reality > Norms can be changed > Change is required (to reduce/limit/end unsustainable development).

⁴ These propositions were also used in the Licentiate thesis Fenton (2014a). Some parts of this thesis were adapted or extracted from Fenton (Ibid) and the conference paper “The intermediary role of transnational municipal networks in governance by diffusion” (Fenton, 2015b).

This proposition emphasises the study of phenomena (in this case, processes of change) rather than location or another object of focus. This places the process of change, and the underlying factors (organisational, etc.) influencing changes in different scenarios, at the heart of the analysis. The selection of an alternative proposition would imply a focus on context-specific action. For example: Sustainable development is important for Humans > Humans live in Cities > Cities are important for Sustainable development.

To some extent, this proposition also influences this thesis and contributes to its framing, justifying as it does the study of specific urban contexts (or municipalities) as examples that illustrate themes or topics relevant to other, non-specified contexts. This proposition enables case studies to be introduced to the theoretical narrative as a means of justifying core concepts (i.e. the viability of sustainable development, the importance of studying human settlements) by providing evidence of a specific action (which may be considered more or less sustainable).

This kind of study aims to identify forms of good practice or promote replication or transfer between contexts, yet on occasions, the deductive logic of the propositions above mixes with inductive assumptions, i.e. Sustainability is jeopardised by Problem X > Problem X is addressed by Municipality > Municipality is Sustainable. Such assumptions risk underpinning studies with logic that impedes or limits critical thinking.

It is partly for this reason that, as previously noted, this thesis avoids making assessments concerning the relative performance of different cities or approaches aiming for sustainable development. Rather, this thesis illustrates the influences on, and implications of, attempted processes of change with reference to the results of case studies examining governing of strategic planning for urban sustainability.

In other words, this thesis presents a study of approaches to governing for urban sustainability, rather than an assessment of the performance of governing for urban sustainability. This distinction is critical, and motivated with reference to literature presented in the Theoretical Framework.

1.4. Structure of the thesis

The thesis is comprised of this Introduction, followed by the Theoretical Framework informing the thesis and its Research Questions. Thereafter follow the Methods used to prepare the thesis and a Presentation of the appended papers and their results.

This informs Analysis and Discussion of the results in relation to the aforementioned Research Questions. The thesis proceeds with Conclusions and proposals for Future Research highlighting implications for researchers and practitioners, prior to the References and five appended papers.

2. Theoretical Framework

This chapter presents a broad discussion of theoretical perspectives motivating and informing the thesis, beginning with an overview of research addressing governing for urban sustainability. Thereafter follow discussions related to scale, strategy spaces, and implementation, before presentation of definitions concerning actors in this study and specific issues related to governing climate change. Several research gaps are identified, some of which are addressed by the RQs of this thesis.

2.1. Governing for urban sustainability

The extensive literature on governing for urban sustainability informs the theoretical framework of this thesis. *Governing* is typically conceived as the act or process of attempting to influence the development of society or particular sectors or activities (Rydin, 2010). Myriad approaches to governing exist, ranging from practices typically associated with *government* to those associated with *governance* (Lange et al., 2013).

Hysing (2009) illustrates a spectrum of government and governance to indicate how different approaches result in variation in terms of governing instruments and style, the nature of public-private relationships, and the level of policy. Such approaches are not necessarily mutually exclusive, but coexist and interact. The implications of this provoke debate, with authors such as Jessop (2003) claiming that governance exists in the “shadow of hierarchy”, that is, where traditional forms of government dominate.

In contrast, Bevir and Rhodes (2016:16) argue that “policy always arises from interactions within networks of organisations and individuals...” and “state authority is constantly remade, negotiated and contested in widely different ways in widely varying everyday practices”. From this “decentred” perspective, governance appears as a constant practice, rather than an activity subservient to government.

Moreover, power, which “appears wherever people interpret and respond to one another...” is redefined as “...a force lacking any centre...” as “...every actor is both enabled and constrained by the actions of others” (Ibid:13-14). This indicates that any actor participating in a process of governing can exert influence and that an actor’s relative

power may increase or diminish depending on its strategic approach and the stance of other participants.

In this way, governing can be seen to emphasise forms of practice which appear oppositional, but may also be interpreted as being complementary yet distinctive, and to vary depending on the context or specific timing of events. In addition, the agency of actors within processes of governing is shown to have implications for the extent to which such processes are characterised by government or governance (cf. Quitzau et al., 2013; Wolfram and Frantzeskaki, 2016).

Returning to power, Rydin (2010) refers to three forms – overt, covert and latent – proposed by Lukes (1974). Also known as visible, hidden or invisible power (Pettit, 2013; UN-Habitat, 2016), these forms have particular resonance in processes of governing as they shape the actions, decisions and understanding of actors in any given situation.

Overt power refers to explicit or direct attempts by one actor to influence another, and thus involves recognition and articulation of challenges and visible attempts to overcome them. In contrast, covert power may be used to hide or avoid issues, and deliberately stifle debate or action. Latent power concerns perceptions, and the ability of actors to influence other actors' understanding and intentions (Lukes 1974; Rydin, 2010).

Power is thus multi-dimensional (descending from above, horizontal/lateral and ascending from below) and has different forms and locations which are variously active or passive, direct and indirect. Power conflicts may be visible or unseen, and influence both decision-making and non-decision-making, or the extent to which processes include or exclude topics or stakeholders (Lukes, 1974; Pettit, 2013).

Power is thus “a relational property, residing in the relationships between actors”, conditioning responses, both in terms of measures but also interactions (Rydin, 2010:55). Although the role of an institutional actor, the municipal organisation, is central to this thesis, the main focus of the thesis is on governance, as exemplified by the organisation of strategic planning processes and the role and relationships of actors in processes of governing for urban sustainability.

The thesis does not consider governance inevitable, but a consequence of contingencies that reflect contextual differences and the varying roles of actors and individuals (Leck and Roberts, 2015). Govern-

ance is defined as an interactive process between stakeholders seeking to influence the articulation, development, formulation and implementation of activities – including strategies and policies – that aim for sustainability (Lange et al., 2013). Governance is typically understood to be composed of a triumvirate of polity (institutions and actors in a specific context), politics (the contestation of ideas) and policy (the outcome of such contestation) (Ibid; cf. Treib et al., 2007).

This implies that a study of governance should focus on the actors operating within a specific context and the ways in which interests and ideas are promulgated and generate impacts in terms of outcomes (Rodrik, 2014; cf. Leck and Roberts, 2015). What, then, influences the form and process of governing for urban sustainability in municipalities? What influences the actors participating in or seeking to influence governance processes?

2.2. Governing urban sustainability at different levels

Various studies have addressed such questions and provided valuable insights for this thesis. In general terms, such studies focus on three levels – the *intra-municipal*, i.e. what happens within the geographic zone of a municipality; the *inter-municipal*, i.e. what happens between municipalities in terms of “horizontal” activities; and a *vertical* level relating to hierarchical tiers of government and the municipal role in so-called multi-level governance (Haarstad, 2015).

Governing for urban sustainability is thus not only influenced by the intra-municipal context, but also horizontal (inter-municipal) and vertical (national, international, etc.) considerations⁵. Interaction between the three levels is inevitable, yet proactive and strategic processes are required to maximise the sustainability outcomes of potential synergies across and between levels (Sauer et al., 2016).

Addressing the intra-municipal level, authors such as Zeemering (2012) suggest that there is a need to scrutinise how city governments

⁵ Haarstad (2015) says the intra-municipal level is “infrastructural”, that is, influenced by conditions in the local built environment. By means of contrast, Stead (2016) retains the vertical and horizontal levels, yet replaces infrastructural with spatial, temporal and modal when discussing policy integration for sustainable urban transport. A related perspective emphasising urban governance in geographic and territorial processes around ports is offered by Debie and Raimbault (2016).

form and manage processes of governing and the extent of their interaction with other stakeholders to address urban sustainability. Smith and Wiek (2012) suggest that municipal organisations must cultivate alliances with local stakeholders in order to develop comprehensive governance frameworks for urban sustainability (cf. Khan, 2013).

There are examples of attempts to do so. For example, Moloney and Fünfgeld (2015) assess the role of local networks in governance for urban sustainability, and Hamann and April (2012) examine the role of collaborative intermediary organisations (CIOs) in local network governance. CIOs may materialise in various forms, from independent, self-organised entities to initiatives embedded within or closely linked to municipal organisations.

Others note the role and influence of individual politicians (Evans et al., 2005, 2006; Farreny et al., 2011; Hjerpe et al., 2015), leaders, managers (Nalbandian et al., 2013) and administrators (Hrelja, 2011; Hysing, 2013; Hysing et al., 2016; Wang et al., 2014) in both formal and informal governance processes aiming for urban sustainability (Leck and Roberts, 2015)⁶.

However, it should be noted that, at the inter-municipal level, municipalities compete in many ways, most obviously on economic or resource-based issues such as labour or energy, yet also in terms of profile, branding and quality of life (Bulu, 2014; DiGaetano and Strom, 2003; Hodson and Marvin, 2010; Timms, 2011; Wæraas et al., 2015). Urban sustainability is one arena for competition, as indicated by efforts to cultivate green city brands (Andersson, 2015; Busch and Anderberg, 2015; Hult, 2015; Mejía-Dugand, 2016) and the proliferation of sustainable city indexes (Mori and Christodoulou, 2012).

⁶ There are interesting parallels between this literature and studies on organisational change, which typically focus on the *what*, *why*, and *how* of change in organisations. Pettigrew (1987) defines these as *context*, *content* and *process*. This wide scope has enabled theorists to address topics such as the temporal nature of change, the dynamics of change and the extent to which change is planned or emergent, the influences or intentions stimulating change, the role of leaders or change agents, or the semantics and concepts underpinning change. Many of these topics are discussed within the literature on governance and urban sustainability (e.g. Lange et al. (2013) note Hillman et al. (2011) and Newell et al. (2009) as examples of studies focusing on the questions of who/how/what governs?), and it is reasonable to assume bidirectional exchange between these scholarly fields is possible.

However, competition and cooperation are not always mutually exclusive, but rather part of a wider, interdisciplinary process that frames both the physical environment of cities and the production of knowledge, a topic addressed by “policy mobilities” research (Baker and Temenos, 2015; McCann and Ward, 2011). For example, a significant strand of literature explores inter-municipal cooperation through networks, projects or other collaboration (James and Verrest, 2015; Keiner and Kim, 2007; Mejía-Dugand et al., 2015).

Such cooperation may occur within a specific regional, national or supranational context (Pablo-Romero et al., 2015), or internationally through transnational interactions (Bouteligier, 2013). The examples of national or transnational municipal networks (TMNs) illustrate this, by providing fora through which horizontal activities – e.g. interaction and mutual learning between cities – may be facilitated. For example, Bouteligier categorises the main services of TMNs as knowledge transfer; capacity-building; and representation (Ibid; cf. Feldman, 2012).

TMNs addressing urban sustainability and related themes typically provide services that aim to enhance processes of governing within member municipal organisations, whilst increasing members’ awareness of relevant generic or specific practices in other municipalities and thereby facilitating “governance by diffusion” of good practice between municipalities (Hakelberg, 2014; Feldman, 2012; Román, 2010).

The extent to which TMNs contribute to dynamism or isomorphism is unclear and subject to many contingencies (Ammons and Roenigk, 2015), but in general terms TMNs may help municipalities to think and work “beyond city limits” to extend the scope of municipal processes (Seitzinger et al., 2012; Seto et al., 2012; Setzer, 2015). Nevertheless, as Bouteligier (2013) suggests, such networks also fulfil a vertical function, by representing municipalities and thereby projecting the sum of intra-municipal and inter-municipal actions into national, supra-national or international policy debates.

Such representation is said to have helped influence the vertical development of Local Agenda 21 at the global level (see e.g. Barrutia et al., 2015; Keskitalo and Liljenfeldt, 2012; Selman 2000) and has clearly influenced corresponding inter-municipal initiatives, such as the Aalborg Process in Europe (ICLEI, 2012). In turn, this has contributed to the emergence of other vertical initiatives with strong horizontal characteristics, such as the European Covenant of Mayors (Azevado et al., 2013; Nuss-Girona et al.; 2016).

The latter example illustrates an increasing recognition at the vertical level of the potential role of municipalities in the pursuit of sustainable development (European Commission, 2016; Lo, 2014; UN, 2015; UNFCCC, 2015). Concerning the governing of climate change, the presence of horizontal and vertical levels illustrates the existence of what Benz et al. (2015) call “trans-local action space”. Citing empirical studies in three German cities, Benz et al. claim that:

“local actors do not perceive the vertical and horizontal dimensions as separate but rather as parts of a coherent action space that encompasses every action and communication that transcends the municipal boundaries” (Ibid:322).

2.3. Strategic spaces for urban sustainability

This discussion implies that governing for urban sustainability requires an approach that facilitates development of a “coherent action space” encompassing the three levels to enable processes of change to develop (Ibid).

At the intra-municipal level, Wittmayer et al. (2015) suggest that governing for sustainability should be oriented towards radicalism, whilst embracing incrementalism during implementation. This means “governing sustainability should be about finding creative ways for opening spaces for participation, change, and experimentation” (Ibid:1).

Such local work may be complemented and – depending on the degree of radicalism – possibly strengthened or enhanced by horizontal and vertical activities. Similar points have been made elsewhere, in literature addressing other themes or units. For example, the interactions between actors, institutions and systems – and the effect of perception on agency – is addressed by literature on structuration (Giddens, 1989).

Skill (2008, 2012) builds upon this literature to develop an argument for “ecological action space” at the individual or household level⁷.

⁷ Denters and Mossberger (2006: 554-556) refer to the household level as being part of the “sub-local”, alongside the individual, local and “superlocal” levels, whilst arguing that “in the social sciences an adequate explanation implies the necessity to understand social phenomena as a result of the behavior of *indi-*

Perceptions concerning the scope of an individual or households' responsibility, their ability to act (mandate) or the resources available to them, form the basis for this action space, which in turn shapes and conditions householders' understanding of and responses to their possibility to address environmental challenges in an everyday context.

Furthermore, Skill (Ibid) suggests municipalities aspiring to increase environmental sustainability should seek to understand both the constraints and potential of such space and facilitate its enhancement. Similarly, Hyle (2016) argues for an expansion in the action space for citizens in responsive governance of environmental issues. This implies that an "action space" is something that individuals and organisations can use for strategic purposes, yet that such use is contingent on contextual factors.

For example, in other literature on e.g. transport or urban crime, the term "action space" refers to a set of constrained choices that is based upon individuals' knowledge and understanding of local space, and resultant feedbacks on behaviour (Brantingham and Brantingham, 1981; Horton and Reynolds, 1970). Such perceived action space may be conceived of spatially (Pocock, 1978) yet can also be understood as having implications for governing.

One example is a study by Dörry and Walther (2015) examining the ways in which actors in the Basel agglomeration perceive and define "policy spaces" in spatial terms and the relational impacts of these perceptions on governing. Action space, physical space and policy space are thus innately linked, in the sense that they are filled with the strategic content of governing. Governing thus provides a "strategy space" that actors may influence and seek to fill with policies and actions that result in strategic and material transformations.

However, an actor's "strategy space" is often constrained by a lack of ideas or commitment, in tandem with a failure to grasp the potential scope of their role (Rodrik, 2014). For municipal organisations and other institutional actors, this has profound implications, because:

vidual actors in their social contexts and the more general macrosetting of this context", something this thesis aspires to achieve.

“political agents design their own strategy space. The available instruments are up for grabs and limited only by their political imagination” (Ibid:195).

Political will is thus important in governing for urban sustainability, and a number of studies point towards the need for political leadership to accelerate transitions to urban sustainability (Farreny et al., 2011). Sustainable outcomes are likely to help support virtuous circles, yet – in order to be realised – may require bold ideas or visions that provoke opposition from (supposedly) powerful interest groups (Rodrik, 2014).

Studies on Freiburg by Bratzel (1999) and Buehler and Pucher (2011) illustrate how business groups were initially strongly opposed to some of the environmental initiatives for which the city is now synonymous, yet – through cooperative, participatory forms of governance combined with political resilience – these concerns were negotiated aside. This indicates a shift in actors’ understanding of their strategy space. Of course, such contestations are not uncommon, yet without a firm commitment to move from words to action, they often result in stagnation or inertia.

2.4. Moving from words to action

The distance between words and action is a recurring theme in literature on governing for urban sustainability (Barrutia et al., 2015; James and Verrest, 2015. Blake (1999) calls this the “value-action gap”). For example, in a study of sub-national government in four countries, Anderson (2012) identifies political will, along with capacity and resource deficiencies, as contributing to the emergence of “strategic capacity gaps” and “strategy action deficits”, meaning that seemingly strategic processes either fail to address critical issues, or are unable to translate ambitions into action.

The presence of such gaps has profound implications for urban sustainability, as the concept has an iterative relationship with scientifically-defined thresholds. However, though research on urban sustainability points towards the need to address such gaps, it does not always give clear indications as to how an actor – such as a municipal organisation – should approach such a challenge.

Indeed, the literature on urban sustainability is often explicit about the type of issues that should be addressed by local actors, their possi-

ble roles (see e.g. Fano Guidelines in Evans et al., 2005; University of Amsterdam and ICLEI, 2012:39-40), and the governing techniques and tools available to them (Hjelm et al., 2011; Jänicke and Weidner, 1995; Rydin, 2010). However, the literature is less explicit about the factors that influence actors as they participate in governing for urban sustainability.

In other words, the literature on urban sustainability often neglects to consider what shapes and conditions an actor's "strategy space" and the extent of their participation in governing for urban sustainability. Nevertheless, literature on organisational strategy offers some valuable insights on this point. For example, focusing on business, Porter and Reinhardt (2007) claim that the performance of strategic processes for sustainable development may be improved through the adoption of two perspectives that emphasise reflexivity and scope.

The first is the "inside-out" perspective, which involves organisations extending the scope of their analysis (e.g. environmentally, geographically, temporally, but also in terms of partnerships, production and end-use) to account for up- and downstream effects of their operations (Ibid). Valentine (2010) proposes a similar approach, a "green onion" framework for conceptualising "multiple strategic layers of influence" for companies.

These perspectives address both the internal operations of an organisation and issues directly influenced or controlled by that organisation, as well as indirectly seeking to influence other actors that have a relationship to the organisation's operations. These perspectives resonate strongly with the earlier discussions on the role of power in governing (Lukes, 1974; Pettit, 2013; Rydin, 2010).

The second perspective proposed by Porter and Reinhardt (2007) is the "outside-in" perspective, which involves organisations considering their (dynamic) operating context and the implications of (unstable) external forces on not only the organisation's scope or mandate to act, but also its willingness, capacity and resources to act.

Porter and Reinhardt note that "firms can address outside-in effects strategically if they can manage them in ways that competitors cannot readily match" (Ibid:26; cf. Porter and Kramer, 2006). Conceptually, this appears similar to advocating a shift from attributional (inside-out) to consequential (outside-in) assessment of environmental

impacts (Searchinger et al., 2008), albeit with an emphasis on qualitative, rather than quantitative, values.

For urban sustainability, this perspective may be interpreted as offering a means of increasing awareness about the general context of global sustainability, along with the unseen or hidden impacts of urban activities in other locations (thereby responding to e.g. Seitzinger et al., 2012; Seto et al., 2012) whilst – in local processes – helping actors to stand in the shoes of other stakeholders and thereby gain new perspectives. By doing so, this perspective also accounts for power yet decentres it from a single organisation and locates it in a wider context (Bevir and Rhodes, 2016).

This reasoning suggests that municipal organisations should attempt to adopt a strategic approach to urban sustainability and success in doing so will provide competitive advantages, as well as environmental benefits. These concepts re-emphasise the need to integrate and align vertical and horizontal activities, taking into account both intra-municipal and extra-territorial considerations (den Exter et al., 2015).

In other words, the adoption of a strategic approach to governing implies the development of a communicative approach that emphasises extensive stakeholder participation and aims to solve problems through deliberation and consensus, as opposed to a rational approach emphasising hierarchy and intra-organisational efficiency (Few et al., 2007; Hamilton and Wills-Toker, 2006; Healey, 2009; Innes and Booher, 2004).

The communicative approach represents a shift from conventional, linear planning processes (typically associated with government or command-and-control, see e.g. Khakee, 1999) to processes of network governance. In these, actors adopt unconventional roles and, in the ideal scenario, outcomes result in horizontal governance that complements and adds value to the more vertical, rational approaches that individual actors working in isolation may pursue or seek to impose (Considine, 2005; Wihlborg and Palm, 2008).

Participation thus permits the widening of any single actor's strategy space and, provided that attempts to widen are commensurate with efforts to align and deepen the strategic content of that space, is likely to result in more comprehensive governing for urban sustainability. This finding is supported by innumerable studies (e.g. den Exter et al., 2015; Evans et al., 2005, 2006; Sauer et al., 2016).

2.5. Actors in governing for urban sustainability⁸

The role of municipalities in governing for urban sustainability has been emphasised in a variety of academic and non-academic literature (Betsill and Bulkeley, 2007; ICLEI, 2012) and the municipal organisation is a key object of study for this thesis. The following section defines and considers a number of key concepts related to municipalities and actors – such as municipal organisations – as well as some challenges for researchers attempting to study them.

Municipalities are territorial divisions with specific administrative functions, legal responsibilities and in many cases, political systems. Municipalities exist within wider contexts, in terms of the nation states in which they are located, as well as other sub-national or supra-national entities that influence their operating contexts, and the international system in which national governments liaise. The constitutional status of municipalities varies in different national contexts in both North-western Europe and elsewhere, as does the degree of municipal autonomy (Sauer et al., 2016; Wollman 2008).

Various typologies attempt to capture this diversity. For example, Loughlin (2003) identifies four different categories of local government tradition in Europe – the Southern European Franco model; the Anglo-Saxon model; the Germanic (central European) model; and the Nordic model. Similar categories are proposed by Newman and Thornley (1996), who add an East European category.

Newman and Thornley (Ibid) place The Netherlands as part of the Franco tradition, with hierarchic and systematic planning dominated by the national and local levels; Switzerland as part of the Germanic tradition, which shares characteristics of the Franco tradition yet is dominated by regional level actors; and Sweden as part of the Nordic tradition, where the local level exerts the primary influence over planning.

In contrast, Loughlin (2003) includes The Netherlands in the Germanic tradition. Other approaches include that of Stoker (2011), who produces a typology of local government by societal functions, with Swedish municipalities categorised as “welfare” providers; or typolo-

⁸ This thesis builds upon and extends the analysis of Fenton (2014a), using many of the same definitions. As such, this section is an abridged version of the corresponding section in Fenton (2014a).

gies categorising cities or municipalities by size or function (Beveridge et al., 2016).

The European Union has been keen to encourage subsidiarity with regard to urban sustainability – that is, to promote devolution of powers and thus emphasise the role of municipalities (Minoia et al., 2009). However, the significant variation between municipalities – in terms of everything from geographic area to population size or legal frameworks – means such ambitions are not easily translated into practice (Sauer et al., 2016).

For example, in 2007, the average European municipality had a population of 5,410 inhabitants residing in an area of approximately 50km² (CEMR, 2009). Moreover, around 40% of the 91,252 sub-national governments in the EU at that time were located in France. It is therefore not automatic that a municipality has a large population or is necessarily highly urbanised⁹.

Municipalities are thus a diverse group, of which some municipalities share similar characteristics, albeit for many different reasons. Discussing “rural sustainability” may be more relevant than “urban sustainability” in some municipalities; similarly, some municipalities may consider the “urban unsustainability” of others as a greater concern than their own “unsustainabilities” (Seitzinger et al., 2012).

Studies of municipalities should be conscious of the risk of approaching urban sustainability in terms of “one-size fits all solutions” that neglect the diverse contexts in which municipalities operate (Leal Filho et al., 2015). Comparative analysis of municipalities – both within and between – contexts is challenging (McCann and Ward, 2011).

Whilst certain types of municipalities appear to share similar operating contexts, in the sense that they are entities located *within* agglomerations, other municipalities may have several settlements located within their geographic boundaries, or have a single urban centre that is relatively isolated from settlements in other municipalities (Rosenzweig et al., 2011a). Other factors may vary, such as geographic

⁹ The European Commission defines a city and its commuting zone as having at least 50,000 inhabitants (Dijkstra and Poelman, 2012). See also: http://ec.europa.eu/eurostat/statistics-explained/index.php/European_cities_%E2%80%93_the_EU-OECD_functional_urban_area_definition#Definition_of_a_city (last accessed 20 May 2016).

size, topography, population, financing and resources, legal and political context and powers, etc. Comparative analysis of municipal organisations should always take into account such variation and avoid extrapolating or strongly over-emphasising apparently significant findings (in terms of similarities or differences) (Rosenzweig et al., 2011b).

Similar challenges are evident when studying several municipalities within a single national context (as done in Papers 1-3). Although the formal role of municipalities is typically standardised (in a legal sense) and municipal organisations are instituted in a way that makes them a constant in an otherwise changing context (Smith and Wiek, 2012), there may be significant variation in the types of municipalities and the constellations of stakeholders operating within them (including the municipal organisation itself).

The presence of differences, variations and similarities between and within municipalities may influence, for example, the ways municipalities act alone, in collaboration with others, or in competition. As noted above, a wide range of *actors* may be based or operate within the territory of a municipality. The study of municipalities thus accommodates the study of such actors and a municipal organisation's relationships with them (Zeemering, 2012).

*Municipal organisations*¹⁰ are entities responsible for administration of the municipal territory; often, these are presided over by elected politicians. The municipal organisation includes not only the institutions of local government, but also other entities, e.g. municipally-owned companies (Rydin, 2010; Stead, 2016).

The institutional form of municipal organisations and their responsibilities varies according to the national context (Stoker, 2011; Wollmann 2008). Generally, in North-western Europe municipal organisations have significant legal, economic, political and social characteristics that

¹⁰ The terms municipality and municipal organisation are often used as synonyms for local government, although – as its name implies – the term local government emphasises (political) government of the municipal space, and omits the presence of other actors operating within (and outside of) the municipal territory that may also influence governing of the municipal territory. Moreover, the term may neglect a municipality's participation in governance processes outside of formal governmental activities (Rydin, 2010; Nalbandian et al., 2013).

grant them status, both within their own boundaries and outside (Loughlin, 2003; Rydin, 2010).

The municipal organisation can thus play an influential role in municipal life by exercising authority or by influencing others (e.g. directly and indirectly through use of planning or in collaborative processes); it can also choose to not exercise this influence (University of Amsterdam and ICLEI, 2012). At times, actors may assume the municipal organisation to be important, or to have a “natural” role in a process, even though it may be inappropriate or detrimental to outputs or overall efficiency (Lindholm and Behrends, 2012)¹¹.

Stakeholders in governing processes are actors/entities deemed to have an interest in, affect or be affected by another actor’s actions. For example, political parties or other interest groups such as non-governmental organisations may claim to represent the general public on specific issues. Other stakeholders may include private companies, media, or other public authorities representing national or regional interests (Collins and Ison 2006; Polk and Knutsson 2008).

Stakeholders may have different goals or objectives, and may in some cases exert strong influence over municipal organisations (e.g. by shaping municipal perceptions about anticipated gains from investments) (Stead, 2016). Local definitions of stakeholders are often vague and open to interpretation, with individuals and entities likely to consider others as stakeholders (or not) in different, sometimes inconsistent, ways.

Much of the urban sustainability literature referred to in this thesis – and the studied municipalities in focus in Papers 1-5 – employs no fixed or shared definition of stakeholders, or clarifies who or what are

¹¹ Organisational restrictions may mean that municipal organisations play a constraining role, in which their scope to act may be limited both by the available resources, the ways in which they are involved, and perhaps even by the fact that they are involved (Jacobi and Besen, 2011). Aguilar and Santos (2011) identify a number of other factors influencing inaction, including lack of capacity in the local government (cf. Lindholm and Behrends, 2012), the sense of urgency attributed to different priorities, and the extent to which stakeholders participate in municipal processes. Quitzau et al. (2013) note the presence of lock-in effects, level of participation and responsiveness of institutional actors to changes as other important factors influencing governing for urban sustainability transitions.

stakeholders and under which circumstances. However, the municipal organisation is understood as just one of many possible stakeholders operating within (and in some cases, outside of) the municipality. In this way, studies have the opportunity to illustrate the extent to which different forms of process and varying levels of stakeholder participation may influence governing for urban sustainability.

2.6. Climate change in governing for urban sustainability

In recent years, climate change has taken an increasingly prominent role in discussions of urban sustainability, not least due to its planetary and inter-generational implications and the need for both mitigation and adaptation (Fünfgeld, 2014). Many initiatives seeking to promote urban sustainability have, particularly in the period since the Kyoto Protocol was signed, emphasised efforts to mitigate and adapt to climate change (Lundqvist and Biel, 2007).

As repositories of people, urban areas are a “major contributor to greenhouse gas emissions”, yet urban form also conditions the level of emissions by imposing forms of practice on users living in urban areas and elsewhere (Rydin, 2010:12). As such, actions to reduce greenhouse gas emissions or transform energy systems to enable more efficient, low-carbon societies are considered vital to the pursuit of urban sustainability (European Commission, 2016).

Sectors responsible for significant volumes of greenhouse gas emissions, such as energy and transportation, are thus important study objects. In relation to this, energy and climate planning has emerged as a central component of policy discussions at national and sub-national levels (European Commission, 2010; Lundqvist and Biel, 2007; Nuss-Girona et al., 2016).

In Europe, municipal organisations are encouraged to develop and implement strategic energy action plans for their municipalities, in order to reduce greenhouse gas emissions, reduce energy use and increase energy efficiency (European Commission, 2010). In addition to European Union initiatives, vertical governance of climate change is also evident at the national level.

For example, Sweden has, through a variety of instruments and initiatives, aimed to combat climate change and improve environmental quality or urban sustainability (e.g. 1977 Law on Energy Planning; or the investment programmes LIP (1998-2002) and KLIMP (2003-

2012), see Baker and Eckerberg, 2007; Granberg and Elander, 2007; Swedish Environmental Protection Agency, 2013).

Papers 1-2 illustrate one such example, the development of municipal energy and climate strategies within the Swedish Energy Agency's Sustainable Municipality programme (Uthållig kommun, Swedish Energy Agency, 2015; see Papers 1-2). Stakeholder participation is actively encouraged in such initiatives, and there is "convincing evidence that local actors, especially but not limited to municipalities, play a key role in formulating and implementing urban responses to climate change" (Lo, 2014:279).

Nevertheless, there is also evidence that – at the intra-municipal level – municipal governing of climate change is compromised by factors such as a tendency to focus on the internal operations of the municipal organisation, or to make limited policy interventions that are politically pragmatic, yet largely symbolic or counteract stated objectives (Ibid).

Other limitations and challenges include the role of politics and organised interests; the framing of climate change; institutional capacity; financial barriers; power, authority and mandate; and magnitude of issues at stake. Moreover, five major gaps in the scientific literature on municipal governing of climate change are highlighted (Ibid:280):

- (1) Causality – the links between examples and outcomes are "unclear and ambiguous";
- (2) It is unclear which factors influence performance and how such factors vary across different urban contexts;
- (3) Few studies consider "the interrelationships among the key variables of urban climate governance";
- (4) Temporal factors influencing policies have "been largely ignored";
- (5) "Cities from developing countries remain an understudied group".

2.7. Addressing the research gaps

The literature discussed in this Theoretical Framework, together with the framing logic underpinning the analytical approach of this thesis, suggests that of the aforementioned research gaps, (1) is difficult to assess in a satisfactory manner. Likewise, given that this thesis makes

use of empirical studies from the North-western European context, it does not directly address research gap (5).

These issues lie beyond the scope of this thesis, even if the content of the thesis may contribute to related debates on these topics. In contrast, this thesis directly addresses research gap (2) and, albeit to a lesser extent, (3) and (4).

With regard to research gap (2), Lo (Ibid) considers performance to mean the extent to which the process of governing may be considered more or less successful, rather than the degree to which strategic objectives are implemented, measured and contribute directly to reducing climate change or the achievement of other urban sustainability objectives¹².

Whilst the latter topic is addressed by literature on best practices, this thesis generally concurs with McCann and Ward's view that "neither success nor failure is absolute. One does not make sense without the other" (2015:828), and adopts an approach (see section 1.3) that, by illustrating a variety of processes of governing and analysing their implications, aims to contribute to addressing research gap (2). Lo (2014:280) claims research gap (2) requires studies asking:

"what is the relative importance of top-down influences, the choice of governing techniques, local politics, the institutional capacity of local authorities, the involvement with transnational municipal networks and the strength of the civic society in developing effective urban low-carbon responses? Also, how does the importance of these factors vary across different urban contexts?"

Each of these points is addressed by this thesis. For example, RQ1 "How are processes of governing for urban sustainability organised and practiced in selected North-western European municipalities?" provides insights concerning the presence and influence of different levels of governing, the organisation of governing processes, the extent to which different actors participate, and their capacity to do so.

¹² As noted earlier, Jänicke and Weidner (1995) note a distinction between outcomes, processes and institutions, and provide insights as to the factors influencing outcomes in terms of relative success.

RQ1 thus provides a general framework for responding to this gap in research on governing for urban sustainability. By doing so, RQ1 aims to increase understanding as to what the implications of different approaches to governing are and what influence, in qualitative terms, they may have on outcomes and performance.

Further, RQ2 directly responds to gap (2), asking: “Which factors influence the participation of actors in governing of strategic planning for urban sustainability?”. By identifying such influential factors, RQ2 also informs a response to research gap (3) and what Lo (Ibid:280) states is a need for “a conceptual framework that considers both local and multilevel factors”.

Finally, the call of research gap (4) for longitudinal studies to assess the emergence and evolution of climate change policies over time is partially addressed by the empirical studies, each of which include historical reflections. The contribution of this thesis to research gap (4) is, however, not substantial and should not be over-stated

3. Methods

As outlined in the Introduction, this thesis includes five papers. These papers illustrate differing aspects of governing for urban sustainability, in relation to the aforementioned research gaps and RQs of this thesis. In Chapter 4, the background to each paper is presented, indicating reasons for the selection of different cases, along with the methods used, main results and conclusions.

This Chapter offers a more general reflection on the process of preparing the thesis and in particular this cover essay, along with the relative merits of the different methodological approaches used to conduct the research. Whilst the individual papers focus on specific cases and themes, the cover essay connects the papers to wider theoretical discussions and thereby makes a novel contribution to literature, based on the synthesis of the empirical findings of the five papers.

An unstructured review of literature read during the Ph.D. studies provided the basic framework for the cover essay. This framework was subsequently developed with reference to the five papers and the Licentiate thesis (Fenton, 2014a), prior to more systematic use of literature searches to inform discussion of particular topics.

The analysis presented in this cover essay represents a qualitative synthesis of the results of this process and informs the proposal of future studies. Both the cover essay and the appended papers are primarily based on studies conducted using qualitative research methods, as these were considered the appropriate methods given the aims and objectives of the studies.

Qualitative research methods are typically used to understand phenomena and evaluate the impact of social processes on the development of meanings or concepts (Berg, 2009). However, qualitative research may have different goals, ranging from theory generation (e.g. Eisenhardt and Graebner, 2007; Golden-Biddle and Locke, 1993) to theory elaboration and theory testing (see Lee et al., 1999).

As such, the specific methods used to conduct qualitative research are likely to vary in accordance with the research objectives and topic of study. In contrast, quantitative research methods use data to identify patterns or relationships, with different degrees of complexity (Berg, 2009). Mixed method studies combine aspects of these approaches.

For example, qualitative approaches may contribute to understanding how quantitative studies are framed and assessed, whereas quantitative approaches may provide valuations that complement qualitative studies. The use of mixed method approaches thus aims to enrich the overall quality of studies (Creswell, 2008; Flick, 2009; Goertz and Mahoney, 2006; King, Keohane and Verba, 1994; Miles and Huberman, 1984).

Qualitative research methods are the predominant methods used in this thesis, in which single and multiple case studies have been used to conduct “empirical inquiry that investigates a contemporary phenomenon in depth and within its real-world context” (Yin, 2009:18).

Papers 1-3 are based on mixed method studies, whereas Papers 4-5 are qualitative studies. An overview of the methods used to prepare the five papers is provided in Table 2. Brief explanations concerning the background to each paper and methods used are included in the next Chapter. Below, these methods and their strengths and limitations are discussed.

3.1. Document study

A comprehensive document study provides a vital means of informing studies and corroborating information garnered from other sources. Nevertheless, it is important to critically assess documents in order to establish their purpose and the veracity of their contents (Yin, 2009: 101-105). Document studies should also support “triangulation” of sources and strive to be replicable (Bowen, 2009).

Each of the papers appended to this thesis includes a document study addressing the particular case in question, along with a review of scientific literature relevant to each paper’s theme and research questions.

The general approach for the document studies was (for each case) to access a wide range of publicly-available documents providing information on the context, with particular focus on the research theme; and, for the scientific literature, to review important and recent publications, in order to provide an overview and synthesise key discussions or research gaps.

Table 2. Overview of methods used for each Paper. The sequence shown reflects the research process for Papers 1-2 and 4-5. For Paper 3, the document study represented the first step.

Method	Paper(s)	3	4	5
	1-2		4	5
Description	Mixed qualitative	Mixed	Qualitative	Qualitative
Survey	Sent to 66 municipalities; 60 responses. Quantitative and qualitative analysis of responses. Results informed case selection.	Sent to 24 selected "key informant" stakeholders. 12 responses.		
Workshops		Two workshops at which results were discussed.		
Phone interviews	With individuals in 10 municipalities prior to case selection of 5 municipalities.			
Document study	125 documents (5 municipalities) and literature reviews (strategic planning; stakeholder participation).	Approx. 70 municipal documents covering 15 year period and literature review (psychology).	Approx. 100 documents from various stakeholder groups plus literature review (mobility).	Literature review (ports and shipping; TMNs).
Group interviews	5 group interviews, 1 per municipality – total 24 participants (4.8 per group interview).		2 group interviews (total 5 participants).	
Individual interviews	10 individual interviews.		3 individual interviews.	
Observations	Documented by researchers.		Documented.	Based on personal experience.
Single case study	One per five municipalities in which results from the document study, survey, and interviews were documented.	Yes in Paper 3.	Yes in Paper 4.	Yes in Paper 5.
Multiple case studies - comparative analysis	Yes, in Papers 1-2. Comparative analysis of the five case studies from different perspectives, e.g. strategic planning and stakeholder experiences.		Yes, in a related publication (Fenton and Kanda, 2016).	

To do this, adapted systematic review methodology comprising four steps, inspired by recent journal articles, was used (e.g. Brandt et al., 2013; Cook and Bakker, 2012; Rashman et al., 2009). The four steps are: (1) identify sample; (2) select sample; (3) categorise information; (4) analyse information. This enables synthesis of the content and the identification of issues warranting further study (Rashman et al., 2009).

Information gathered from the document studies was logged in data sheets to provide an overview of municipal strategy, policy, and historical developments related to the studies. The information was also used to develop interview guides. In addition, Paper 5, which was based exclusively on document studies and is partly informed by my experience as a practitioner, makes use of documents in my personal archive to provide general background about the development of the World Ports Climate Declaration. This private information is complemented by extensive use of related public information and scientific journal articles.

3.2. Interviews

Interviews provide a means through which to examine issues identified in a document study in more detail, and are commonly used to investigate and assess the attitudes or behaviour of individual participants in a process (Rowley, 2012; Yin, 2009). Interviews may contain little or no structure, or have a specific agenda. Semi-structured interviews typically have a number of key questions, which may be supplemented by follow-up questions, yet retain a flexible structure to accommodate discussion of the issues the interviewee(s) considers most relevant (Alvesson and Deetz, 2000; Rowley, 2012).

Interviews are conversations and as such, may be interpreted variously (Kvale and Brinkmann, 2008; Yin, 2009). Rowley (2012) recommends conducting approximately six to eight focused one-hour interviews for a typical study. Papers 1, 2 and 4 have attempted to follow this advice and are based on various forms of interview – phone, individual and group¹³ – in which “key informants” involved in strategy and policy

¹³ The studies refer to group interviews, which some literature calls “focus group” interviews. The group interviews followed the same format as individual interviews, yet on occasions resembled “focus group” discussions as the respondents addressed each other and the interviewers were less prom-

development processes participated (e.g. municipal politicians, civil servants, or representatives of local stakeholders) (Pratt, 2008; Yin, 2009).

The interviews followed a similar process to the adapted systematic review methodology described above: (1) identification, (2) interview, (3) categorisation, (4) analysis. Individuals were selected either because of their role (i.e. direct responsibility for an issue in a municipal organisation) or were identified as relevant, either through the document study, discussion with other interviewees or other local contacts. The format of the interview depended partly on the wishes of interviewees and their availability.

In line with good practice, all interviews were anonymous (Alvesson and Deetz, 2000). Interview guides were developed, using inputs from the document studies. However, the interviews were semi-structured and interviewees were free to discuss any issues they wished. All interviews were recorded, transcribed and then interpreted, logged in excel sheets and categorised, prior to analysis (Patton, 2001).

3.3. Workshops

Workshops are a method common to participatory action research, in which the community studied participate in data gathering and the researcher(s) facilitates interactions (Hennink et al., 2011). Workshops replaced interviews in Paper 3, reflecting this study's emergence within the context of a wider research programme involving action research, in contrast to the conventional interview studies in Papers 1-2 and Paper 4. Discussions at workshops were observed and documented, then categorised and analysed in the same way as interview studies.

3.4. Surveys

Surveys can be used in exploratory studies to investigate particular kinds of questions (Yin, 2009). However, survey questions should be carefully designed and analysed, as the design of questions will produce different heuristic responses, such as the substituting of complex questions (e.g. concerning probability) with simpler questions that respondents believe provides the necessary response (Kahneman, 2011).

inent and/or moderated the group discussion (Bryman, 2008; Qu and Dumay, 2011).

In Papers 1-3, survey responses provide basic quantitative results and limited qualitative results. The surveys were distributed via email to purposeful samples of targeted “key informants” and responses were used to conduct basic statistical analysis. Web distribution is considered to offer some benefits compared with other forms of survey, in terms of e.g. ease of administration, response times or fewer unanswered questions (Bryman, 2008).

The survey questions in Paper 3 were designed to reflect the local context (e.g. in terms of the transport modes) and were developed as pairs whose results could be used to investigate the presence of incongruent views and the relative strength or weakness of such views. For most questions, respondents were asked to rank preferences on a scale, which enabled results to be weighted for visual presentation in the Figures presented in Paper 3.

3.5. Analysis

Once gathered, data should be subject to stringent analysis. This may be a challenge for qualitative research studies, which contain a wide range of material from different sources, collected using different methods (Ibid). The approaches outlined above were designed to enable structured, thematic analysis of document, interview and workshop results. For the survey in Paper 3, the responses to each pair of questions were weighted and contrasted, then investigated with reference to the results of a scientific literature study.

Results were written up in the form of single case studies and, in the case of Papers 1-2, the comparative analysis of multiple case studies (cf. Burnard et al., 2008; Gerring, 2008; Golden-Biddle and Locke, 2006). The results provide elaborations of theoretical perspectives and a contribution to current literature, in line with the general principle of case study research that results should be generalisable to theory and other contexts in order to demonstrate validity (Eisenhardt and Graebner, 2007; Pratt, 2008; Yin, 2009). The same basic approach has been used to write this cover essay.

3.6. Limitations

Each of the methods used has advantages and disadvantages. For example, the ability of the researchers to conduct comprehensive document studies is of course limited by the availability of documents, the resources available to the researchers, and the continually expanding

literature base which should be assessed. The documents studied in Papers 1-5 take a variety of forms, such as municipal documents, websites, or other publications.

It is possible that – despite the best efforts of the researchers involved in these studies – documentation, irrespective of format or type, has been overlooked. Similarly, the same is true of scientific literature searches, which have mainly been conducted using key word searches in databases such as Scopus and may thus neglect some relevant older literature or publication formats, such as books.

Concerning language, the thesis makes reference to publications in various languages. Where necessary, native speakers were asked to confirm interpretations of particular points. The interviews and workshops used for Papers 1-3 were conducted in Swedish, yet in Paper 4, the interviews were conducted in English, with minor discussions or points of clarification in German.

However, language did not appear to restrict the number or type of participants in the interview study for Paper 4. Rather, the number and composition of interviews in Paper 4 (and Papers 1-2) was determined by the availability of information about the case, the availability of persons contacted, suggestions by participants concerning potential interviewees, and the time available to the researchers.

With regard to the analysis of data in this thesis, it is not possible to provide a comprehensive assessment of the many issues related to urban climate change governance and urban sustainability. The thesis focuses on particular themes and topics (e.g. organisation), at the exclusion of others (e.g. architecture).

The thesis does not claim to represent urban sustainability in all contexts, nor to address the imbalance of scientific studies in favour of Euro-American examples (Lo, 2014). Moreover, it contributes to a consolidation of a trend in the literature – the tendency to conduct case studies and concentrate on municipal organisations – that has been criticised as problematic.

Indeed, I have written on the issues of regional and methodological imbalance elsewhere (Fenton, 2014a; Fenton, 2014b). Throughout the thesis, I have attempted to explain the reasons for the focus of study in clear terms, and to address a broad scope, in as much detail as possible. The extent to which I have done so is for others to judge. Similarly, Pa-

pers 4-5 are my own work, and not the outcome of collaborative research projects. The content of these papers has been subject to external review and the papers have been published in scientific journals. Any errors are my own.

4. Presentation of appended papers

This Chapter presents the appended papers and their background, along with the specific methods used, results, conclusions, and my contribution to each paper. This format has been chosen to avoid repetition between different Chapters, and to provide the reader with a concise overview of each paper prior to the Analysis and Discussion that follows.

The Papers are presented in a sequence that aims to correspond to the research themes and to provide a relatively smooth transition between topics. Papers 1-4 are presented in chronological order, reflecting the sequence of research projects and writing processes. Paper 5 has a somewhat different thematic focus, addressing the largely overlooked topic of ports in governing climate change (Aylett, 2014; 2015; Nursey-Bray, 2016).

4.1. Paper 1

P. Fenton, S. Gustafsson, J. Ivner, J. Palm, 2015. Sustainable energy and climate strategies: lessons from planning processes in five Swedish municipalities. *Journal of Cleaner Production*, 98: 213-221. DOI: 10.1016/j.jclepro.2014.08.001

Background: The “Sustainable Energy and Climate Strategies” project was funded by the Swedish Energy Agency during the second phase of its “Sustainable Municipality” programme, which ran from 2003-2014. The Sustainable Municipality had three phases – a first phase involving five municipalities, followed by a second phase involving 66 municipalities and a third phase in which 38 municipalities participated. The three phases of the programme saw municipalities exchange ideas and technical knowledge on energy and climate issues, as well as develop strategies and action plans aiming to reduce their use of energy and emission of greenhouse gases (Swedish Energy Agency, 2015).

Summary: Paper 1 presents a comparative study of processes to develop energy and climate strategies and action plans in five municipalities participating in Phase II of the Sustainable Municipality programme. Paper 1 considers the organisational form of such processes by comparing issues including the context for participation in the programme and key drivers influencing strategies; the organisational structures used and steps taken during the processes; the extent of

stakeholder participation in processes; and the general outcomes of processes, in terms of the scope and character of proposed measures.

Concerning the latter point, the article does not aim to assess these measures in relative terms or with reference to particular thresholds. One reason for this was that each of the municipalities was in the early stages of implementation processes and no such evaluation would have been possible. Instead, the article explores links between the form of process and outcomes (i.e. the scope and content of strategies) prior to implementation.

Methods: The research project comprised several stages, starting with a survey distributed to the 66 municipalities participating in Phase II of the programme (see Paper 2; Gustafsson et al., 2013). The researchers received responses from 60 municipalities and subsequently held follow-up interviews with ten municipalities.

Five small-medium sized municipalities – broadly representative of the 66 participating municipalities in terms of size, etc. – were selected for detailed study¹⁴. A comprehensive study of important municipal strategies and plans from these five municipalities was carried out, informing the development of a general interview guide for the study. The researchers then made visits to each municipality and conducted individual and group interviews with a range of stakeholders.

These interviews were recorded and transcribed. Subsequently, the material gathered for the study was assessed and analysed by the researchers in several stages – preparation of single case studies; comparison between case studies; and comparative studies. A more detailed description of the methods is provided in the appended Papers 1-2, and the related publications Fenton et al. (2012) and Gustafsson et al. (2013).

Results: Paper 1 found that municipalities that actively enabled stakeholder participation during the processes to develop energy and climate strategies were able to develop strategies that were wider in scope, whereas municipalities that limited stakeholder participation addressed fewer issues with a more limited scope. There was no obvious

¹⁴ These municipalities have varying characteristics, with e.g. populations ranging from 5,000 to 150,000 (2012). The municipalities were granted anonymity, and coded as Municipalities A, B (both large), C (medium-sized), D and E (small). See Papers 1-2 for a detailed explanation.

relationship between the relative size of the municipalities with the form of process used, or the extent or timing of stakeholder involvement.

The municipal organisations in the five municipalities interpret their roles and perceive their scope to influence others in varying ways. Such variations may be explained by, for example, ideologies, experience, the capacity and expertise of personnel, administrative routines and levels of individualisation contra diffusion within municipal organisations, or the form of financing or resources available.

Certain contextual factors (e.g. change of personnel) appear as predictable surprises, whereas others – timing, relationship to other initiatives, political will and the role of politicians within processes – vary considerably and, appearing influential, are explained with reference to proposed communicative or rational models of governing.

Conclusions: The use of these models implies that the form of process used to develop energy and climate strategies is a choice and therefore more emphasis should perhaps be given to understanding the process of choosing how to devise a process. The extent to which such a choice is conscious and deliberate or not is unclear.

However, this conclusion suggests that municipal organisations – or the individuals operating within them or around them – should, when seeking to develop processes aiming for urban sustainability outcomes, be more aware about the implications of their particular choice(s) and deliberate in their selection(s).

My contribution: The survey and interviews were conducted prior to me joining the project. The case study research involved all four researchers in different ways, for example by attending site visits, transcribing interviews and conducting analysis of the material. I was lead author for Paper 1. Sara Gustafsson and Jenny Palm contributed with significant theoretical input and comments.

4.2. Paper 2

P. Fenton, S. Gustafsson, J. Ivner, J. Palm, 2016. Stakeholder participation in municipal energy and climate planning – experiences from Sweden. *Local Environment*, 21(3): 272-289. DOI: 10.1080/13549839.2014.946400

Summary: Paper 2 was developed within the same research project as Paper 1, yet presents different empirical data and more expressly focuses on the issue of participation. Results from the survey that informed the selection of cases in Paper 1 are presented here in more detail.

The article proceeds with a discussion based on the experiences of participants in energy and climate planning processes in the five municipalities. The juxtaposition of participants' own words provides the basis for comparisons and analysis addressing both the intra- and inter-municipal contexts. The implications of stakeholder participation for the different processes is then considered.

Methods: The overall approach to data collection and analysis was the same for Papers 1-2. However, in contrast to the more descriptive approach used in Paper 1, Paper 2 is based on analysis of the interview transcripts and the researchers' observations.

Results: Paper 2 indicates that early and active participation of stakeholders in processes to develop energy and climate strategies appears to enhance the quality of processes. For example, such approaches resulted in strategies addressing a broader range of issues and with greater acceptance or apparent legitimacy.

In contrast, processes in which stakeholders were engaged in limited or pre-determined ways, or excluded, resulted in strategies that were narrow in scope and have a low status or are weakly anchored in a wider organisational context. Nevertheless, survey results suggest the majority of municipalities adopt the latter approach. The interview findings illustrate the implications of this variation, as the municipalities that focused internally struggled with issues such as poor communication, inter-departmental conflicts and lack of political engagement.

In such cases, stakeholder engagement was limited and challenging, and in some cases focused exclusively on communicating decisions to stakeholders and society, rather than engaging them in processes of co-creation. In contrast, municipalities adopting communicative approaches were open to stakeholder participation and ideas, and developed processes in partnership with a range of actors outside of the municipal organisation.

Conclusions: A number of factors influence the development of municipal climate and energy strategies and their content. Influential factors include the importance of a clear, shared vision and engaged poli-

ticians; the size and organisational structure of the municipality and its willingness and capability to act; the organisation of the process and extent to which stakeholders not only have been involved but also felt included; the need for clarity about financial aspects, such as planned financing of implementation; and the need for greater clarity concerning selection of targets and their relevance to global climate and energy trends.

The Paper proposes a conceptual method, based on different “rings” of control or spheres of influence, that may assist municipal organisations when designing and implementing strategic planning processes. This approach may be used to clearly define and understand how one actor’s scope is shaped and influenced by others, thereby enabling a transition from hierarchical to participatory processes.

My contribution: The process was similar to Paper 1. I was lead author of Paper 2, with Sara Gustafsson and Jenny Palm providing the main theoretical input and other comments.

4.3. Paper 3

P. Fenton, S. Gustafsson, 2015. Contesting sustainability in urban transport – perspectives from a Swedish town. *Natural Resources Forum*, 39(1): 15-26. DOI: 10.1111/14778947.12061

Background: The research was carried out within the Sustainable Norrköping programme, a four-year (2010-2013) endeavour financed by the Norrköping Development Foundation and addressing different dimensions of urban sustainability (see e.g. Wallsten, 2015). Within the programme, research on municipal strategies and plans for sustainable transportation was conducted. This research aimed to assess themes including urban planning for city logistics and sustainable mobility, and the role of stakeholders in organising and delivering transport services.

Summary: Paper 3 presents the case of Norrköping and its strategic work for sustainable urban transport. Norrköping is a Swedish city with a population of around 137,000 (2015). A transition towards a low-carbon, sustainable transport system is shown to be a critical challenge for Swedish public policy. Nevertheless, municipalities such as Norrköping are struggling to achieve a reduction in motorised transport and increase the modal split of sustainable modes of transport.

Central to this challenge is an apparent gap between words and action, which is highlighted by the results from a study of municipal strategies and plans. A survey and workshops were used to explore this issue, with results suggesting incongruence (on both the individual and group level) concerning the preferences, behaviour, opinions and experiences of “key informants” working close to strategy and policy. These results are explored with reference to literature on political psychology.

Methods: A document study was conducted and provided detailed information about the policy context. An experimental survey was developed and distributed to 24 “key informants”, who were also invited to a workshop on transport planning. The preliminary results of the survey were presented to this group, and provided input to the development of quantitative scenarios, which were then discussed at a follow-up workshop.

Results: A broad range of stakeholders received the questions, yet respondents were mainly individuals active in municipal politics and the municipal administration. These respondents claimed to have significant influence over municipal planning. It is unclear as to why few representatives of other stakeholder groups responded, yet one possible explanation is that the low response rate reflects the degree to which stakeholders consider themselves involved in the formulation and implementation of municipal strategy and policy.

Paper 3 suggests that the individual behaviour of the respondents does not align with their preferences for municipal planning. Moreover, there are significant differences between what individuals consider should be prioritised in planning, and what is actually and likely to be prioritised. Similarly, individuals perceive path dependencies, even if they desire alternative developments.

The outcomes of choices are that – at the group level – the respondents fail to practice what they preach. However, they continue preaching, and prioritise in strategies, although this does not result in implementation. Moreover, despite preaching and prioritising, there is limited belief that change is possible or likely.

In other words, the individual actions of these respondents contribute towards practice that reinforces the gap between words and action. This incongruence may suggest that individuals absolve themselves of responsibility for ensuring action, or that they encounter barriers preventing them from acting. In either case, this indicates a de-

gree of isolation which may be self-imposed, yet may also be systemic, a possible consequence of departmentalism or exclusive processes.

Conclusions: A lack of conviction concerning the possibility and viability of change may thus contribute to the reaffirmation of existing norms and thereby consolidate negative path dependencies. This implies that participants must choose to overcome mental barriers – both individually and collectively – in order to develop more coherent approaches enabling modal shift to sustainable forms of mobility.

My contribution: The authors designed and carried out the study together. I was the lead author of the paper.

4.4. Paper 4

P. Fenton, 2016. Sustainable mobility as Swiss cheese? – exploring strategies for urban transport in Basel. Natural Resources Forum (in press). DOI: 10.1111/1477-8947.12093

Background: The idea for the Sustainable Mobility project emerged when developing scenarios for sustainable urban transport as part of the Sustainable Norrköping project. Data for modal split in European cities of a comparable size to Norrköping was studied, in order to identify municipalities with a low share of motor vehicles in traffic, together with a multi-modal mix. Such cities, it was reasoned, provided an indication of what modal split could be achieved and therefore offer inspiration for medium-large-sized Swedish cities seeking to increase the share of sustainable modes of transport.

The project studied governing for sustainable mobility and the role of renewable energy in transportation in the cities of Basel, Switzerland; Göttingen, Germany; and Odense, Denmark. The project was financed by Riksbbyggens Jubileumsfond Den Goda Staden; the Swedish national innovation agency Vinnova through its programme “Verifiering för samverkan”; and Göteborg Energis Stiftelse för forskning och utveckling.

Summary: Paper 4 presents the case of Basel and explores influences on sustainable mobility strategy, policy and implementation. The Canton of Basel-Stadt has a population of 197,200 and is located in a larger agglomeration in which 900,000 people reside (2015).

The study considers the historical development of sustainable mobility in the Canton of Basel-Stadt and the city's unique constitutional situation, as an urban canton within a confederation that practices direct democracy. Interviews with stakeholders active in strategy and policy development processes highlight a number of contested topics.

These examples illustrate how direct democracy can shape the scope and level of ambition in strategies and policies, yet also withdraw (or grant) the mandate for specific measures to enable achievement of such ambitions. This has implications not just for how the Canton works, but also where it works, with investments being made in other countries to increase levels of sustainable mobility.

Methods: The paper is based on a study of documents relating to local, regional and national politics, policies and initiatives concerning sustainable mobility and transport, urban development, etc. This informed the development of a semi-structured interview guide. A range of potential interviewees were identified and contacted during early 2015, prior to interviews with eight individuals in April 2015. These interviews were transcribed, logged in excel sheets, and categorised to enable structured thematic analysis. This forms the basis for the findings presented in Paper 4.

Results: Paper 4 illustrates how both historical and recent debates have resulted in a continual process of bargaining, orientation and iteration concerning strategy and policy aiming for sustainable mobility and sustainable urban transport. The results of Paper 4 suggest that the coalescence of numerous factors, already indicated in the previous studies, plays a conditioning role on the “strategy space” available to individuals and organisations seeking to influence the development or implementation of policy.

For example, the importance of individuals and their choices is highlighted, as are the framing conditions played by the specific history and context of the city, its resources and the ways in which it interacts with local and other national or international stakeholders. Basel thus appears somewhat of a paradox, maintaining both strong performance (vis-à-vis comparably-sized cities) and ambitious targets, whilst facing a continual struggle to develop, secure approval for, and enforce measures aiming to achieve these targets.

Conclusions: Paper 4 contributes to literature on sustainable mobility by examining the implications of a specific constitutional form –

Swiss direct democracy – on the form and content of policies. Direct democracy plays a conditioning role on processes of governing, which emerge from and contribute to ongoing processes of consultation, re-framing and adjustment depending on the outcomes of elections, referendums, initiatives and petitions.

Paper 4 shows that in Basel, this results in strong performance and significant contestation; democratic votes that appear to send efforts to implement policies in opposing directions; constraints on local intracantonal action facilitating and contributing to wider horizontal initiatives; and significant frustration among some stakeholders concerning the pace, form and content of governing processes, strategies and policies.

An important finding of Paper 4 is that the presence of committed individuals who seek to continually expand the “strategy space” of governing processes is critical when developing and implementing strategies aiming for sustainable mobility and urban sustainability. At the same time, incrementalism appears unavoidable in transitions to sustainable mobility. However, in contrast to the Norrköping case, incrementalism need not be a barrier to ambition, yet may be understood as a strategic tool – although this appears to be contingent on the level of ambition and commitment shown by key individuals.

My contribution: I designed and carried out the study and am sole author of the article.

4.5. Paper 5

P. Fenton, 2015. The role of port cities and transnational municipal networks in efforts to reduce greenhouse gas emissions on land and at sea from shipping – an assessment of the World Ports Climate Initiative. Marine Policy (in press). DOI: 10.1016/j.marpol.2015.12.012

Background: Paper 5 is perhaps best described as a product of circumstance. During 2007-8, I worked for the Clinton Climate Initiative and was closely involved in the development of the World Ports Climate Declaration (WPCD). This involved considerable cooperation with the City and Port of Rotterdam. A large number of studies have assessed projects aiming for industrial symbiosis and urban sustainability in Rotterdam (Baas, 2008; Frantzeskaki et al., 2014; Jhagroe and Loorbach, 2015), and I decided to write a course paper looking at the World Ports Climate Initiative (WPCI) from that perspective.

I subsequently received a call for papers regarding a conference on shipping and climate change, to be organised by the Tyndall Centre, University of Manchester. I rewrote the course paper, reframing it in relation to transnational municipal networks. My reflections on a professional experience were thus integrated into a wider analysis of the role of ports, port cities and transnational municipal networks in governing climate change. The conference organisers invited submissions to a special edition of *Marine Policy* in which the article has been published.

Summary: Ports, and the cities that host them, provide the interface between maritime and land transport, yet their importance as nodes leads to diverse environmental pressures. Paper 5 reflects on the process to develop the WPCD, which was initiated by the City of Rotterdam (2015 population: 620,000). The WPCD was adopted by 55 of the world's largest ports in 2008, and subsequent efforts to implement this declaration have taken place through the WPCI. The WPCI aims to reduce the climate and environmental impacts of port operations and international shipping, both on land and at sea.

Paper 5 focuses on the role of port cities and transnational municipal networks (TMNs) in (multi-level) carbon governance. The study highlights areas of progress, as well as a number of criticisms of the WPCI and constituency groups including ports, port cities and TMNs. Paper 5 makes five recommendations that may contribute to overcoming institutional challenges and facilitate collaborative approaches to support more effective carbon governance in port cities.

Methods: The paper is based on an extensive literature search, with supplementary information based on my personal archive (e.g. correspondence, notes, working documents, etc.) and recollections of the process to develop the WPCD.

Results: Paper 5 provides an assessment of the WPCI after several years' implementation. The assessment indicates that, although the overall intention of the initiative – to improve governance through adoption of common goals and facilitation of multi-sectoral, multi-stakeholder activities aiming to reduce emissions – remains relevant, various practical barriers impede the rate of implementation.

The capacity and resources of participating actors is one such barrier; others include the internal dynamics of networks, such as the presence of dominant members or the levels of resources available to

networks and their members. With regard to the WPCI and port cities, a tendency is observed of WPCI to focus within ports and neglect engagement with port cities and other major stakeholder groups. This conditions the scope of action and clearly limits the possibility to achieve structural or systematic changes within the sector.

The limited nature of stakeholder engagement reflects both the deployment of a rational approach at the institutional level (i.e. the focus on port operations and the port community), yet also attests to the extraordinary complexity of addressing a transition in a sector that is international in character, yet lies outside the framework of many international agreements, and is strongly interrelated with other activities, interests and sectors.

Conclusions: The WPCI has contributed towards implementation in specific locations, mainly in regional clusters, and on specific topics and themes. This suggests that voluntary inter-municipal governance initiatives can complement intra-municipal actions, yet the more complex and challenging an issue is, the more difficult it is to achieve tangible outcomes.

Increasing stakeholder participation both at the intra-municipal and inter-municipal levels may help increase the level of action, yet the findings of Paper 5 suggest some degree of vertical governance will also be required to accelerate the transition towards low-carbon ports and shipping.

My contribution: I designed and carried out the study and am sole author of the article.

5. Analysis and Discussion

This Chapter analyses and discusses the results of the papers in relation to the RQs of this thesis. It begins by responding to RQ1, first presenting the results of the Swedish cases (Papers 1-3) and then examining results from Papers 4-5, before offering conclusions on RQ1. The Chapter proceeds with analysis in response to RQ2 and the presentation of the main theoretical contribution of the thesis, thereby informing the Conclusions and suggestions for Future Research that follow.

5.1. RQ1: How are processes of governing for urban sustainability organised and practiced in selected North-western European municipalities?

With regard to organisation, Paper 1 and Paper 4 provide the most detailed accounts of varying forms of governing processes aiming to increase levels of urban sustainability and reduce the climate impacts of urban activities. The issue of practice is addressed by each of the five papers.

5.1.1. Results from the Swedish cases

The five Swedish municipalities studied in Paper 1 employ divergent approaches to governing for urban sustainability when developing energy and climate strategies. These are broadly categorised as rational or communicative approaches, and imply increasing government (in the rational approach) or governance (in the communicative) respectively (Healey, 2009; Hysing, 2009).

The adoption of different approaches has no obvious relationship with the municipality's relative circumstances, but rather appears to evolve from particular choices that are informed by explicit or implicit assumptions concerning e.g. the scope of the topics at stake or the efficacy of a process. However, the implications of these choices are significant.

Municipalities A, C and D organised the processes to develop energy and climate strategies so as to enable active participation, both from within the municipal organisation and from external stakeholders. In contrast, municipalities B and E adopted rational approaches focusing on the internal operations of the municipal organisation and limiting the involvement of external stakeholders. Survey results suggest that

the majority of municipalities participating in the Sustainable Municipality programme also adopted rational approaches and that communicative approaches are atypical when organising processes to develop energy and climate strategies in Sweden.

By adopting rational approaches, municipalities appear to prioritise organisational change ahead of societal change. They neglect the opportunity to enlarge their strategy space and benefit from synergies with other like-minded stakeholders. Moreover, such municipalities limit the tools and techniques at their disposal.

For example, Lo (2014:270-1) reviews the scientific literature on urban sustainability to reveal four types of “governing techniques”, namely “self-governing” (i.e. own operations); “governing through enabling” (i.e. supporting voluntarism in other sectors); “governing through provision” (i.e. shaping practice through e.g. service delivery); and “governing by authority” (i.e. urban planning, regulations, etc.).

Lo’s review suggests “self-governing and governing by enabling are the most common governing techniques used by municipalities to achieve low-carbon urbanism” (Ibid:270). The findings of Paper 1 support this and indicate that many Swedish municipalities fail to make full use of the available tools and techniques of governing.

In many contexts, “soft” interventions, conflict avoidance, fragmentation, and incrementalism mean that “despite many pledges and promises, too many cities are either doing nothing or engaging in symbolic action” and little to address emissions from other sectors (Ibid:272). These claims are supported by the findings of Papers 1-2, and also by the case of Norrköping presented in Paper 3.

The Norrköping case indicates the presence of a gap between the words of strategies and action or outcomes in terms of physical planning and behaviour. The Norrköping study suggests that institutional routines generate barriers by promoting departmentalism and short-termism, and reiterates the important role of individual politicians and civil servants in governing for urban sustainability as identified by other studies (Hjerpe et al., 2015; Hysing, 2013; Leck and Roberts, 2015; Smith and Wiek, 2012).

For example, the survey results suggest a lack of confidence or self-belief concerning the possibility to achieve strategic objectives (cf. Ev-

ans et al., 2005, 2006), and individual actions that reinforce the gap between words and actions (cf. Henriksson, 2014; Hrelja, 2011).

The variations in governing at the intra-municipal level within the Swedish national context suggest that there will inevitably be significant variation within the North-western European context. The implications of these findings for practice can be viewed in several ways. For example, from a rational approach perspective, it may imply that the municipal organisation should focus on internal operations and on ensuring it practices as it preaches prior to pursuing wider objectives.

Another view would be that the use of communicative approaches may help pre-empt or resolve implementation gaps by e.g. increasing stakeholder involvement in development and implementation of strategic objectives. In either case, if strategic objectives and individual practice are to align, there appears to be a need for much more concerted effort, in terms of active policies and restrictive measures to ensure the implementation of strategic objectives. Similar trends have been observed in other settings and appear to be a fundamental challenge in governing for urban sustainability (den Exter et al., 2015; Evans, 2005, 2006).

5.1.2. Results from Basel and Rotterdam

In contrast to the Swedish municipalities, governing in Basel is clearly defined by the constitutional status of the Canton Basel-Stadt and its three municipalities as a direct democracy. This means the role of government is emphasised, yet policies often emerge or are contested through mechanisms facilitating communicative approaches (Dörry and Walther, 2015). From a Swedish perspective, Basel illustrates a hybrid form of governing that captures aspects of both the rational and communicative approaches.

A diverse range of actors are aware of, and able to influence, governing for urban sustainability in Basel and its agglomeration. There is a varied use of governing techniques as outlined above, and use of power in line with Lukes' (1974) definition, although power appears to be decentred and diffused across society (Bevir and Rhodes, 2016) rather than concentrated in the hands of a single actor. No similar trends were observed in the Swedish municipalities, not even the highly-communicative Municipality C.

The aforementioned results primarily address the intra-municipal level. The Swedish studies did not examine in detail the implications of multi-level governance, although there was evidence of e.g. horizontal governance through Municipality A's engagement in an EU project addressing governing for urban sustainability in Paper 1, or inter-municipal cooperation between Norrköping and its neighbour Linköping on urban sustainability and climate change (Municipalities of Linköping and Norrköping, 2010) in Paper 3.

Similarly, there was evidence of vertical governance influencing local developments in all municipalities (as the studies related to a national programme) and particularly in the cases of Municipalities D and E (whose participation was influenced by additional regional initiatives) in Paper 1.

In contrast, inter-municipal cooperation is more clearly illustrated in the case of Basel, and in Rotterdam's initiative for the WPCD. In each case, inter-municipal cooperation seeks to address issues that are too large or complex for single municipalities to address and which require multi-stakeholder collaboration to achieve progress.

For Basel, regional cooperation is often international and as such, contingent on the development of approaches to governing that overcome significant disparities in capacity, resources, etc. The Canton of Basel-Stadt makes use of overt, covert and latent power (Lukes, 1974) within the tri-national agglomeration to increase its strategy space and address questions which lie outside of the formal scope and mandate of the Canton, such as infrastructure planning for sustainable mobility in French or German municipalities (a detailed account on this topic is provided by Dörny and Walther, 2015).

In contrast, the WPCD and WPCI are classic examples of well-intended yet operationally problematic attempts at network governance within a specific sector. Rotterdam, unable to address critical challenges that impede implementation of its own climate change and urban sustainability objectives in part due to first-mover problems, established an initiative aiming to generate political will and commitment among port cities facing similar challenges.

The WPCD outlined several programme areas and envisaged the flexible use of governing techniques to implement actions addressing these topics. Nevertheless, the outcomes of this initiative represent incremental, fragmented, and on occasions, symbolic actions, suggest-

ing that whilst the WPCD was developed with communicative intentions, the WPCI has been implemented using a rational approach. This suggests there is a role for vertical governance, or a need for bolder municipal approaches, when governing for urban sustainability in complex sectors or across boundaries (Nurse-Bray, 2016).

5.1.3. Conclusions on RQ1

In sum, the five papers indicate that the organisation and practice of governing for urban sustainability in the cases studied is partly conditioned by, for example, the extent to which horizontal governance is deemed necessary or vertical governance influences the local context. At the intra-municipal level, the particularities of local politics or institutional frameworks provide a partial explanation for varying forms of organisation and practice both within and across country contexts.

The case of Basel illustrates a hybrid form of governing in which rational and communicative approaches co-exist across a wide range of policy areas, including urban sustainability. The singularities of the case (Siggelkow, 2007), and its status as a “forerunner” city (Bratzel, 1999), are precisely what makes it an interesting reference point, although it is important to emphasise that Basel is a highly unique case, both within Switzerland and Europe.

Similarly, Rotterdam, with its enormous port and industrial cluster, is an unusual case within Europe. The city’s initiation of the WPCD/I reflect its unique context. Nevertheless, by abstracting the information from the case, the example highlights an issue familiar to other cities – that is, an attempt to solve a complex problem (in the case of Rotterdam, large-scale) that involves a diverse range of (domestic and international) stakeholders, with limited resources or direct mandate.

The case illustrates the kind of challenges that may emerge when attempting to address such complex topics with voluntary initiatives that seek to improve governing for urban sustainability at both the intra- and inter-municipal levels.

Paper 5 does not include an assessment of other intra-municipal efforts to address urban sustainability in Rotterdam (e.g. Baas, 2008; Frantzeskaki et al., 2014), yet other literature on this topic, including the case of Basel discussed in Paper 4, suggests the need for alignment

of government and governance within such initiatives (den Exter et al., 2015).

In other words, even when it is possible to align interests to address first-mover problems or other complex challenges, someone must move first. This role is likely to fall upon the municipal organisation, as the primary institutional actor at the local level (cf. Howlett and Ramesh, 2015).

Political actors have the opportunity to widen their strategy spaces to promote governance and accommodate others, yet they must also deepen their practical engagement and implementation to ensure strategic objectives are fulfilled (Rodrik, 2014). This returns us to the Swedish examples presented in Papers 1-3. As noted above, these indicate a tendency to adopt rational approaches to governing for urban sustainability at the intra-municipal level.

The emphasis on rational approaches may be seen as enabling self-governing, or moving first. However, the Swedish cases highlight the risk that rational approaches are pursued at the expense of communicative ones. Hybrid forms of governing, as illustrated in Basel, appear to offer potential to bridge the gap between rational and communicative approaches.

Nevertheless, the use of such approaches to create a policy space is only part of governing for urban sustainability. Such space must be filled with content, and for this reason, it is necessary to extend our focus to the influences on actors participating in governing for urban sustainability.

5.2. RQ2: Which factors influence the participation of actors in governing of strategic planning for urban sustainability?

The results of RQ1 provide indications as to how the organisation and practice of governing for urban sustainability in the studied cases shape the ways in which actors interact, and the implications of such interactions. Nevertheless, the results of RQ1 are less explicit with regard to the factors which mobilise or place limitations on actors' participation. Which factors influence actors in governing for urban sustainability, and how are these linked to the findings of RQ1?

As indicated above, context is an obvious influence, in the sense that it shapes and conditions the ways that individuals and organisations operating within the context perceive and understand their possibilities to act on any given issue (see e.g. Bratzel, 1999; Buehler and Pucher, 2011; Joy and Vogel, 2015). The framing effects of context are thus important for researchers and practitioners to reflect over. Context is a dynamic concept, and is ceaselessly reshaped, not least by the actors participating in processes (Jänicke and Weidner, 1995).

These actors adopt roles which may be characterised as more or less rational or communicative, and may vary depending on the phase of a process. Constellations of different actors may, individually or collectively, shape the general context framing a strategic process.

Key individuals or entities, or the timing of an activity or intervention, may have major significance in pushing a process forward – or holding it back (Hrelja, 2011; Quitzau et al., 2013). Papers 3-4 illustrate some of these dynamics, in terms of for example, how individuals perceive roles, or how roles influence outcomes.

From the actor's perspective, the triumvirate of context, the role of actors and the phase of a process are significant background influences that contribute towards the framing of responses. In some senses, they are equivalent to the triumvirate of polity (i.e. institutional context), politics (i.e. actors) and policy (i.e. issues and phase) that appears to exist at the systems level and that are central to many political science studies of governance (Lange et al., 2013).

However, whilst these triumvirates indicate the existence of an actor or system in a point in time, they do not necessarily provide clarity concerning the influences on that actor or system during, before or after that moment. Moreover, the specificity of the moment is easily conflated with the location of the moment, i.e. that the geographic zone of the “municipality” becomes the object of study, rather than actors or systems active within the municipal space.

Such striation may lead to “atomised” analysis that emphasises the specificities of context over more generalisable implications of content (Smith and Wiek, 2012; Vallance et al., 2012). However, when focusing on the actors involved in processes of governing for urban sustainability, the appended papers reveal a general pattern of influences: the five factors.

5.2.1. Introducing the Five Factors for urban sustainability

The five factors were observed during preparation of the Licentiate thesis (Fenton, 2014a)¹⁵. These are considered to be significant yet generalisable influences on the development of municipal energy and climate strategies (as observed in Papers 1-2) and wider initiatives aiming to promote urban sustainability (according to a literature review of journal articles, see Fenton, 2014a).

These factors have been repeatedly discussed in literature on urban sustainability, yet their influence in shaping the strategy space of actors in governing for urban sustainability has not been explored in a structured way.

The identification of five factors was not inevitable, yet the five were evident in the results of Papers 1-2. The thesis proposed bringing the five factors together and recognising them as important influences on actors involved in the development of municipal energy and climate strategies and wider processes for urban sustainability (Ibid).

The five factors are *Capacity*, *Mandate*, *Resources*, *Scope* and *Will*. These factors are understood to interact and, in the absence of a defined methodological basis for assessing the relative strengths or weaknesses of each factor, may also be considered interdependent or inseparable.

Each factor can be considered multi-dimensional, dynamic and context-dependent, operating as an umbrella under which a variety of other related influences may find space. The following short descriptions provide examples intended to facilitate understanding of the five factors:

- *Capacity* is a much-discussed factor in the literature on the role of municipalities in urban sustainability (see e.g. Aguilar and Santos, 2011; Evans et al., 2005, 2006; Lindholm and Behrends, 2012). Capacity concerns the ability of actors to participate in processes and subsequent implementation.

Capacity has both institutional and social characteristics; it may relate to group or individual competencies or capabilities,

¹⁵ Parts of this section are adapted from Fenton (2014a) and Fenton (2015b).

in terms of knowledge and understanding, yet may also relate to whether such groups or individuals have the opportunity to participate (Howlett and Ramesh, 2015; Jänicke and Weidner, 1995; Rydin, 2010).

- *Mandate* has multiple meanings and may relate to legal, political or social/ethical norms or regulations influencing the perceived or defined scope for action (Trisolini and Zasloff, 2009). In its various forms, mandate provides the entitlement to act, and is closely linked to the issue of legitimacy. Mandate also has an impact upon the internal processes of organisations.
- *Resources* – both in terms of actual resources and perceptions about resources – influence processes in numerous ways (Jacobi and Besen, 2011). For example, time, budget, personnel and information may all be considered as resources. Jänicke and Weidner (1995) state that the capacity of actors is dependent on the resources available to them.
- *Scope* is, like mandate, related to the legal, institutional, constitutional and organisational contexts framing a process. Whereas mandate is a means of providing entitlement and claiming legitimacy, scope relates to the opportunity to act and the extent of action.

As such, scope interacts with other factors, such as capacity, to influence the scale and direction of a process. Scope can also be understood to have spatial or temporal implications and thus relate directly to the inter-generational and extra-territorial impacts of unsustainable development (Griggs et al., 2013; Seitzinger et al., 2012; Seto et al., 2012).

- *Will* relates partly to the desire of individuals and groups to address the challenge of urban sustainability, and within this, to determine how to do so.

Will is thus closely related to scope and mandate, as it influences the extent to which both may be challenged; e.g. by determining the extent to which people are willing to change or modify systems, regulations or norms that pose barriers to actions; and the extent to which people understand the impacts of their actions and are willing to embrace new ideas or substantial changes to the status quo. Jänicke and Weidner (1995:22) call will a “precondition for effective policy-making”.

In essence, the five factors represent points of leverage which, depending on how they are mobilised, influence the extent of strategic action in municipalities. Fenton (2014a) considers that actors determined to maximise the potential of their strategic processes may find utility in the five factor framework.

Moreover, use of the five factors as an analytical tool may help researchers and practitioners increase their understanding of the underlying structural conditions that influence and shape actors' participation in governing for urban sustainability in municipalities.

Observing the five factors in practice

Table 3 illustrates observations of the five factors in the five studies and provides a general assessment of the respective strength or weakness of the factors in each study. Taking each factor in turn, the papers indicate:

Capacity

In line with previous literature, the results suggest capacity exerts an important influence on governing. The strong levels of institutional and social capacity among actors in Basel are observed as influential in shaping the strategic content of governing for urban sustainability. In the Swedish cases, some actors chose to defend apparent inaction or limitations in strategies by citing low levels of institutional capacity as a justification.

However, other actors stated that low levels of institutional capacity actually enabled the adoption of different approaches and thus widened the overall scope of governing processes. Thus, increased capacities provide actors such as municipal organisations with improved opportunities to more comprehensively address urban sustainability, yet other factors also influence the extent to which they do so.

Mandate

The results illustrate ways in which the influence of mandate may vary in different contexts. For example, in Norrköping, the municipality has politically-approved objectives to increase levels of sustainable mobility, implying strong levels of political will and a mandate to enact changes favouring sustainable modes of transport and restricting use of motor vehicles.

Table 3. Examples of general observations of the five factors in the case studies.

	Papers 1-2	Paper 3	Paper 4	Paper 5
	Five Swedish municipalities	Norrköping	Basel	Rotterdam
Capacity	Variation. Weak (E), contested (A,B), stronger (C,D).	Intermediate level (potentially strong).	Strong institutional and social capacity.	Strong within Rotterdam; weak within and across WPCI.
Mandate	Strong (legally), mixed politically.	Strong (legally and politically).	Strong (subject to voter preferences).	Strong within Rotterdam; variable in WPCI ports.
Resources	Mixed, range from low (D,E) to average (A,B,C) in Swedish context. ¹⁶	Average in Swedish context.	High level (North-western Europe).	High within Rotterdam; low for WPCI.
Scope	Narrow (E) to broad (C).	Gap between words (broad) and action (narrow).	Broad and comprehensive.	Broad and comprehensive.
Will	Disinterest (E); engagement (C).	Lack of engagement.	Mixed signals, yet engaged.	Engagement in Rotterdam; mixed in WPCI ports.

¹⁶ Defined using national index measuring municipal tax revenues per citizen. Statistics Sweden (2015).

Nevertheless, when participants in policy processes were surveyed concerning their expectations, opinions and behaviour, the results suggested a lack of belief that such objectives may be accomplished. This may reflect a lack of capacity, resources or will on the part of actors, or perceived constraints on the scope of mandates.

Having a mandate is thus different from using a mandate, believing it can be used, or even having the right to enforce a mandate. For example, the study of Basel shows how a mandate to pursue a strategic objective (reduction of motor vehicle traffic) was counteracted by a public vote that limited the possibility to enforce measures achieving this objective.

Resources

As with capacity, the availability of resources may be used as a justification of both action and inaction. Indeed, the two are not unrelated and directly influence the strategic orientation of actors (Jänicke and Weidner, 1995). Nevertheless, the ways in which resources are mobilised, and the extent to which this is done, is arguably more important than the relative level of resources available.

The case of Rotterdam illustrates an attempt to mobilise actors to address a broad scope of actions in a complex sector with relatively limited (financial or human) resources. The varying outcomes of the WPCI indicate that other factors, such as mandate and will, influence the allocation of resources (and resultant levels of capacity) and thus affect the degree to which the WPCI's scope may be addressed.

The Swedish municipalities studied in this thesis are not, in their national context, in any sense rich, yet may be more or less resourceful (Fenton, 2014a). The Swedish studies indicate attempts to increase resources through use of external co-financing should be done with care. Basel, by demonstrating how a city may co-finance the activities of other municipalities, illustrates how resources may support implementation of strategic objectives across boundaries, yet also highlights the potential risk that extra-territorial actions may dilute the strategic content of measures implemented within the city itself.

Scope

The results of this thesis demonstrate that municipalities make use of different approaches and reasoning to justify the scope of their processes. For example, the cases of Basel and Rotterdam show an increase

in scope may be a bi-product of limitations or constraints on local action.

In Rotterdam, expanding the scope of municipal action through network cooperation was perceived to offer potential added-value that could accelerate local action; yet such cooperation is not unproblematic, and is contingent on inter alia, the will of other participants, their capacity, resources and (particularly in the case of Chinese ports) their mandate to do so.

Findings from the Swedish studies suggest a structured understanding of scope will enable actors to differentiate between issues of direct control, indirect control, indirect influence, other influential aspects, and seemingly non-influential factors, which may not be directly relevant in the particular context, yet may inform the other scopes and be difficult to perceive when employing a rational approach.

This structured understanding of scope – and its interrelationship with the different levels of governance – should enable actors to address multi-dimensional problems in a systematic way (Fenton 2014a).

Will

The will of actors is clearly influential in each of the five papers. For example, direct democracy in Basel has push-and-pull effects that influence the withdrawal and introduction of various types of strategy and policy. The will of the population plays an important role in shaping the Canton's mandate to enforce strategy. This influences the chosen scope and location of measures aiming to promote urban sustainability and the resources allocated to them.

Moreover, as noted above, the will of individual politicians is also considered influential in Basel and other locations. In the case of the WPCI, the initiative originated from Rotterdam's will to address climate change and willingness to use its status as leverage in networking with others. Will is thus a means of mobilising power, in all its constituent forms; conversely, in its absence, significant barriers emerge.

5.2.2. Conclusions on RQ2

Based on the results of Papers 1-2, Fenton (2014a) proposed five factors influencing the participation of actors in governing for urban sustainability. The influence of the five factors is evident in the results of Papers 3-5 and in the literature reviewed for this thesis, thereby val-

idating the conclusions of Fenton (Ibid) and providing a response to RQ2. Moreover, the results of this thesis extend the analysis of the five factors, by indicating that they play a role in conditioning the strategy spaces of actors in governing for urban sustainability.

The five factors shape and inform an actor's understanding of a process and their role in that process, and affect the framing and conditioning of their responses to the process. The five factors provide a conceptual framework, generalisable across contexts, through which to understand the role of actors in governing for urban sustainability and thereby represent a contribution to discussion of themes including the use of rational or communicative approaches in strategic planning (Ibid).

The relative strength/weakness or apparent significance of the five factors is shown to vary within and between contexts and levels. This variation is shown to depend on the specific context, role of actors and phase of a process. In sum, the factors identified appear to condition the space in which a strategy aiming for sustainability can be shaped.

In other words, an actor participating in the development of strategies and policies for sustainable development defines their role in (before, during and after) a process in relation to (actual or perceived) conceptions of capacity, mandate, resources, scope and will.

The sum of these interactions influences an actor's understanding of the possible role they can play in a process, and, where many actors are involved, it is the bargaining and contestation between differing perspectives that shapes the space available for sustainability strategies. Space, in this meaning, refers not only to the conceptual space for strategy, but also to the actual physical space that such strategies address.

In this thesis, the role of the municipal organisation in processes aiming to increase levels of urban sustainability and reduce greenhouse gas emissions has been in focus, yet these findings may have relevance for other actors or topics. Indeed, a number of authors make similar claims regarding the existence of strategy spaces and the ways in which these are shaped, and shape an actor's approach and actions to strategic challenges (see section 2.3).

For example, Skill (2008) argues that municipalities can facilitate increased action for sustainability among householders, yet that this is

contingent on municipal organisations acquiring an improved understanding of the possibilities and constraints households face. Thus, municipal organisations should pay particular attention to their strategy space, as (a) the strategy spaces of different actors interact to some degree, (b) some actors – in this case the municipal organisation – have the ability to influence the strategy spaces of other actors; and (c) as political actors, municipal organisations can design their own strategy space (Rodrik, 2014).

The results of this thesis support this reasoning. The municipalities studied in the five papers have elected political leaders and, as such, have strong possibilities to expand the scope of local sustainability strategies by working to increase the municipal organisation's strategy space. Partly by doing so, the municipalities have the opportunity to influence actors operating within (and to some extent outside) their municipal boundaries and thereby increase the (physical and mental) space for urban sustainability.

The findings suggest a strong emphasis on self-governing within the framework of a rational approach will hinder the development of expanded strategy space, yet also that a reliance on more communicative approaches, e.g. in the form of voluntary inter-municipal activities, may not necessarily improve the quality of strategy space. Rather, it is the extent to which the five factors are mobilised by participating actors that is likely to influence the relative width and depth of processes of governing for urban sustainability.

Municipal organisations should thus strive to increase their strategy space so as to develop sustainability strategies that increase the (physical, mental and policy) space for sustainability across different levels. This involves sensitivity towards contextual circumstances, and also a readiness to embrace varying roles, depending on the phase of a process. Moreover, this involves actively harnessing the potential of the five factors, irrespective of whether circumstances may be considered challenging or ideal.

This applies both to individuals working within the municipal polity (including politicians), and to the municipal organisation itself. Such an approach is likely to result in multi-dimensional initiatives involving diverse groups of stakeholders, not all of whom may share the same objectives. Patience and resilience is thus likely to be required to overcome conflicts and achieve consensus.

6. Conclusions

This thesis makes a novel contribution to the literature on governing for urban sustainability and organisation theory in general, by identifying the five factors – capacity, mandate, resources, scope and will – as significant influences on actors’ participation in governing and the relative size of an actor’s strategy space.

The thesis suggests that the ways in which a municipal organisation perceive and mobilise the five factors will strongly determine the extent of its sustainability strategy space. This in turn will have implications for the ways in which processes of governing are conceived and understood, with resultant consequences for the participation of other actors both during strategic planning processes and in subsequent implementation phases.

A municipal organisation’s ability to mobilise the five factors is partly related to the contextual circumstances of the municipality in question, yet also contingent on choices that, for example, influence the adoption of rational or communicative approaches. The extent to which municipal organisations adopt rational or communicative approaches to governing has implications for the ways in which processes are perceived and undertaken, as well as the kinds of governing techniques a process emphasises.

Results indicate that, whilst contestation, implementation gaps, and frustration or pessimism were experienced across contexts, processes of governing that were characterised by communicative approaches address a wider scope of activities and stakeholders and thereby appear to offer greater potential to achieve comprehensive action to reduce greenhouse gas emissions and increase levels of urban sustainability.

Nevertheless, an increase in the scope or horizontal width of a process does not always coincide with an increase in the vertical or intra-municipal depth and integration of that process across locations, all of which appear vital for sustainable development. At the intra-municipal level, a municipal organisation adopting a rational approach may interpret each factor in narrow terms and, by doing so, wittingly or unwittingly reduce the scope of their process.

This may result in vertical implementation of sustainability objectives within a single municipal organisation, yet fail to address the more comprehensive, horizontal, inter-generational challenges of climate change and sustainable development in a substantive way. In contrast, a municipal organisation adopting a communicative approach may seek to maximise the potential of each factor, yet face challenges if particular factors are weak, e.g. the mandate for change, if other stakeholders do not share the same perspectives. This may result in broad horizontal strategies, yet diffused or limited vertical implementation.

In North-western Europe and many other parts of the world, municipal organisations are political actors and can broadly define their own role. Municipal organisations have thus the opportunity to develop comprehensive forms of governing for urban sustainability, whilst retaining the mandate to impose or enforce change when required – both within and outside of their organisation.

Adopting approaches that facilitate communicative forms of governing offers the potential to harness synergies between stakeholders and identify hidden potentials, something assertive mobilisation of the five factors may support. This may contribute to enlargement of actors' individual and collective strategy spaces. However, this implies that there is a need to increase levels of knowledge and political will – and a need for conscious, deliberate and sustained action – to comprehensively address urban sustainability.

Political will, in this sense, alludes not only to politicians, but also to those participating in processes of governing for urban sustainability. Rational approaches, which tend to consolidate hierarchical relations, separation of functions, departmentalism and individualism within municipal organisations, thus appear undesirable, unless understood as an implementation tool for specific purposes when embedded within a broader communicative approach to governing.

In other words, there is a clear need for lateral thinking on urban sustainability, which purely rational approaches appear to limit. Nevertheless, communicative processes must not only increase levels of knowledge and political will, but also emphasise the vertical implementation that is often required to achieve change within organisations. This thesis finds that, in order to do so, actors need to mobilise the five factors and expand their strategy space, in order to achieve vertical and horizontal alignment of strategic objectives and facilitate implementation that delivers transformative change for urban sustainability.

7. Future Research

Future research has the possibility of examining ways in which actors may mobilise the five factors and expand their strategy space. The papers appended to this thesis illustrate some pathways, yet many more may be envisaged and explored. Other types of actors may be studied, such as those operating in other sectors or contexts.

Future research may also explore the characteristics of each factor in more detail, the interdependencies and interactions between different factors, and the mechanisms that operationalise them. Such research would represent significant contributions to the scientific literature on urban sustainability by addressing several research gaps identified by Lo (2014).

The extent to which the five factors may contribute to the alignment of interests (both between actors and across levels) is also worth investigating in more detail, as is the degree to which the mobilisation of the five factors contributes towards different outcomes. Indeed, it is worth reflecting on the links between the five factors proposed in this thesis, which concern process, and the factors influencing successful outcomes of environmental initiatives, as proposed by Jänicke and Weidner (1995).

Assuming the primacy of Jänicke and Weidner's work and nesting the five factors within their success factor "actors", it may be possible to investigate relationships between the five factors and an actor's strategy space with what Jänicke and Weidner (Ibid) propose to be the other influences on outcomes (structures, situations, strategies and time).

This may enable integration of these perspectives into broader theory concerning how the process of governing influences outcomes of environmental or urban sustainability initiatives. Such research would enrich the literature on governing for urban sustainability, and potentially provide clarity concerning the mechanisms influencing the development of a municipal organisation's sustainability strategy space.

8. References

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